



Guide to the European IT Markets

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General Overview

European Union

This introductory section of the guide focuses on some of the ways in which European Union (EU) policy and legislative developments can shape ICT hardware, software and services markets across the region. An understanding of the direction and scope of these developments can help U.S. companies prepare for and take advantage of their market impact. EU developments can throw up threats, opportunities and compliance requirements for U.S. companies, and sometimes a combination of all three. The following is designed to raise awareness of the importance of the “EU angle”.

The impact of EU policies

The eEurope 2005 initiative is an example of an EU policy that can drive ICT applications, services and content markets, and increase demand for the hardware and software that underpin them. Its objective is to stimulate the take up of secure *services, applications and content based on widely available broadband infrastructure*. The means for achieving this are set out in the European Commission’s (EC) eEurope 2005 Action Plan and endorsed by the EU’s Member States.

The plan recognizes the private sector’s central role in developing and investing in digital products and services but points to a problem it believes governments can help resolve: *funding more advanced multimedia services depends on the availability of broadband for services to run on while funding broadband infrastructure depends on the availability of new services to use it*. eEurope aims to work both sides of the equation with measures targeted at encouraging demand for broadband and others creating the right environment for its supply.

On the demand side the Action Plan promotes the development of useful content and services that individuals and companies will want to use and that require wider bandwidth connections to the Internet. Apart from a continued emphasis on removing barriers to e-business most of the action centers on initiatives to encourage the “3 e’s”: elearning, ehealth and egovernment. While it is up to Member States to facilitate progress in these areas, the EC plays a key role by identifying examples of best practice and benchmarking between Member States keen to reinforce their “e” credentials.

On the supply side, in addition to boosting security through the creation of a European Network and Information Security Agency, the EC highlights the key role to be played by the EU’s new regulatory framework for electronic communications. Its successful implementation and enforcement is seen as the key to encouraging a competitive telecommunications market that can help deliver competition over multiple networks and platforms.

A successfully implemented eEurope strategy up to 2005 and beyond will positively impact demand for the software and hardware needed to create and use the new services, applications and content running over these high-speed networks. The European Commission and Member States are now beginning to focus on the possible content of a follow up to the eEurope 2005 program, which should run through to 2010.

The impact of EU legislation

EU legislation relevant to the ICT sector can impact U.S. companies directly, by making them change their own behavior, or indirectly by changing the strategies and requirements of their present and future EU based customers. Some examples:

- Legislation impacting business models.

EU rules applying Value Added Tax to software downloaded from the U.S. - since July 2003 U.S. based companies selling downloadable software to private consumers in the

EU have had to collect Value Added Tax (VAT) on those sales and reimburse the VAT to a local tax authority in the EU. The tax is levied according to where the consumer is based and, with EU national VAT rates varying from 15-25%, the price hit will vary per tax jurisdiction. Under a special scheme provided for in the legislation, non-EU based suppliers can choose which national tax authority they deal with for VAT purposes. They must register with that authority and provide regular VAT returns detailing the sales made in each of the EU's 25 Member States. Although VAT is not a tax on business there are nevertheless compliance costs involved with administering VAT.

- Legislation driving compliance assistance markets

EU data privacy rules - there are strict EU wide laws that set out how supplier, customer and employee data can be collected, stored, processed and transferred. This type of data is crucial to most companies' operations and many are willing to invest in hardware and software that can facilitate their task. A real understanding of the compliance challenges facing these potential customers can help in the developing and marketing of software solutions for them. Furthermore a recent review of the EU's Data Protection Directive encouraged greater use of Privacy Enhancing Technologies (PETs) to allow consumers to better manage their identities and information online.

- Legislation supporting new markets

EU rules on the reuse of public sector information - the recently approved EU Directive on the Reuse of Public Sector Information aims to harmonize the conditions under which public sector information is made available for commercial exploitation. Existing differences in the approaches taken by Member States have made it difficult for companies to develop value added pan European information services based on raw public sector data.

- Legislation driving changes to marketing techniques

The EU Directive on Privacy and Electronic Communications includes a provision, known as the “ban on Spam”, which in most situations requires companies to get the prior consent of individuals before sending them marketing communications by email. This “opt-in” approach contrasts with the “opt-out” requirement in the recent CAN-SPAM legislation in the United States. Some online seller of hardware and software will need to adjust their marketing approaches and filtering software providers will need to ensure their filtering systems are compatible with the opt-in regime.

- Legislation designed to open up markets

New regulatory framework for pan European electronic communications services -The European Union (EU) has changed the way it regulates the telecommunications sector to take better account of an increasingly competitive and technologically convergent market. The New Regulatory Framework for Electronic Communications (NRF) is a package of EU Directives that aims to bring legal certainty and a harmonized approach across the EU’s 25 Member States

The NRF represents a fundamental change in the way the EU regulates electronic communications infrastructure and services. In particular, it switches the regulatory focus from the traditional public switched telecommunications network to all electronic communications networks and services; makes use of competition law principles to assess market dominance; and provides greater flexibility to National Regulatory Authorities to apply rules that suit local conditions and are adaptable to developing technology and changing market conditions.

The New Regulatory Framework is just that: a framework. The real impact will be felt by market players as national regulators complete their market studies and start applying remedies to control the activities of dominant operators. The devil is in the detail and the detail is in the implementation and enforcement of the new rules. Consistent implementation across Member States will be a key issue for operators and service providers that look at the market from a pan European perspective

- Legislation driving changes in production processes and after sales service

The Directive on Waste Electrical and Electronic Equipment (WEEE) will make producers responsible for the collection and recycling of electrical and electronic equipment from 13 August 2005. The WEEE Directive is complemented by the Directive on the Restriction of Hazardous Substances (ROHS), which will limit the use of certain hazardous substances in electrical and electronic equipment from 1 July 2006. The substances targeted include lead, mercury, cadmium, hexavalent chromium, and flame – retardant PBBs and PBDEs.

- Legislation setting existing product approval requirements

Manufacturers of ICT equipment need to be aware of mandatory requirements for radio telecommunication and terminal equipment (RTTE), low voltage (LV) equipment as well as electromagnetic compatibility (EMC). In order to bring such products on the EU market, the manufacturer has to ensure that all essential safety and health requirements as described in the annexes of relevant EU legislation have been met, apply the CE mark and establish a declaration of conformity. Depending on the level of risk, manufacturers can self-declare conformity.

Where the services of laboratories are required for tests and certification, manufacturers can select an accredited U.S. based test laboratories or an EU based notified body under the terms of the U.S./EU Mutual Recognition Agreement (MRA) for RTTE, and EMC. Tests to EU requirements by a U.S. “conformity assessment body” (term for test lab under the MRA) will be accepted without additional requirements, and vice versa. The MRA is not about accepting FCC certification in the EU, or CE mark in the United States.

- Legislation shaping future product approval requirements

The regulatory environment is not static, as legislators amend or consolidate existing legislation or propose new mandatory or voluntary schemes. Although it is still in the

very early stages, manufacturers should be aware of upcoming legislation affecting electrical and electronic equipment. Like the RTTE, EMC and LV Directives, the proposed Energy using Products Directive (EuP) should offer manufacturers the possibility to self-certify conformity to essential environmental requirements. Standardization to set levels of exposure to electromagnetic fields (EMF) from equipment and establish test methods is ongoing. U.S. manufacturers based in the EU are encouraged to work with their associations to monitor progress and implementation, and if possible, participate in the standardization process through national standards bodies.

Conclusions

EU developments impact European markets targeted by U.S. exporters of ICT product and services in many ways. In addition to the policy and legislative aspects covered above, EU funding programs such as the European Regional Development Fund, the Sixth Framework Program for Research and Development and ad-hoc initiatives such as the Safer Internet Program can all drive markets and provide opportunities for cooperation with EU based partners.

There is a temptation and a tendency to view EU developments as somehow detached from what is happening in national markets. This, of course, is misguided. While EU policy and legislation is agreed at the EU level, it is implemented, administered and enforced for the most part by the Member States. When looking at the EU market as a whole, or focusing on individual national markets, US exporters of ICT hardware, software and services cannot ignore the EU angle. The Commercial Service at the U.S. Mission to the EU is there to help you cover yours.

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Country Reports

Austria

Geography

Area: 83,857 sq. km. (32,377 sq. mi.); slightly smaller than Maine.

Cities: *Capital*--Vienna (2003 pop. 1.5 million). *Other cities*--Graz, Linz, Salzburg, Innsbruck, Klagenfurt.

Terrain: Alpine (64%), northern highlands that form part of the Bohemian Massif (10%), lowlands to the east (26%).

Climate: Continental temperate.

People

Nationality: *Noun and adjective*--Austrian(s).

Population (2003): 8,032,926.

Annual growth rate (2002): 0.22%.

Ethnic groups: Germans 98%, Croats, Slovenes; other recognized minorities include Hungarians, Czechs, Slovaks, and Roma.

Religions: Roman Catholic 73.6%, Lutheran 4.7%, Muslim 4.2%, other 5.5, no confession 12.0%.

Language: German 92%.

Education: *Years compulsory*--9. *Attendance*--99%. *Literacy*--98%.

Health (2003): *Infant mortality rate*--4.2 deaths/1,000. *Life expectancy*--men 75.9 years, women 81.7 years.

Work force (2002, 3.8 million): *Services*--67%; *agriculture and forestry*--4%, *industry*--29%.

Government

Type: Parliamentary democracy.

Constitution: 1920; revised 1929 (reinstated May 1, 1945).

Branches: *Executive*--federal president (chief of state), chancellor (head of government), cabinet. *Legislative*--bicameral Federal Assembly (Parliament). *Judicial*--Constitutional Court, Administrative Court, Supreme Court.

Political parties: Social Democratic Party, People's Party, Freedom Party, Greens, Liberal Forum.

Suffrage: Universal over 18.

Administrative subdivisions: Nine Laender (federal states).

Defense (2002): 0.8% of GDP.

Economy

GDP (2003): \$250 billion.

Real GDP growth rate (2003): 0.7%.

Per capita income (2002): \$25,320.

Natural resources: Iron ore, crude oil, natural gas, timber, tungsten, magnesite, lignite, cement.

Agriculture (2% of 2002 GDP): *Products*--livestock, forest products, grains, sugarbeets, potatoes.

Industry (29% of 2002 GDP): *Types*--iron and steel, chemicals, capital equipment, consumer goods.

Services: 69% of 2002 GDP.

Trade (2002): *Exports*--\$77 billion: iron and steel products, timber, paper, textiles, electrotechnical machinery, chemical products. *Imports*--\$77 billion: machinery, vehicles, chemicals, iron and steel, metal goods, fuels, raw materials, foodstuffs.

Principal trade partners--European Union, U.S., Switzerland, and Hungary.

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Part 1 - Market Overview

The Austrian ITC (Information technology and communications) market in 2003 totaled \$10.9 million. IT accounted for \$ 5.7 million and telecommunications for \$5.8 million.

Computer hardware accounted for \$ 1.8 million, software products for \$1.1 million and IT services for \$2.8 million. Telecom services amounted to \$4.9 million and communications and network equipment for \$313 million in 2003.

IT spending is expected to recover in 2004. The recovery will be gradual but solid, having a real impact on most market sectors by the middle of 2004. Leading drivers will include spending on security solutions, streaming media, digital identity services, server blades, and the wireless rollout. Linux will experience a banner year, but web services will have less of an impact in the short term. Windows XP will experience rapid growth but will not have the impact of previous Windows evolutions. Overall, industry experts forecast that 2004 will be a better year for the industry than 2003 was.

The total ITC market is expected to grow by 6.0 percent in 2004.

The expected annual growth rate in 2004 and 2005 will be 6.0 percent for IT and 3.6 percent for telecommunications. Overall, sales for the entire computer hardware sector are expected to increase by 4.4 percent in 2004. Industry experts forecast a marginal growth of 4.0 percent for the entire hardware sector, 5.3 percent for software products and 7.3 percent for IT services in 2004.

It is critical that software be “user-friendly”, whether marketed to personal users, business professionals or executives. It is vital that the software be “bug-free” and

preferably written in German. Software packaging is important for retail sales and should be in German.

The market for databases is growing, especially as Austrian companies develop and maintain e-commerce sites, and as small and medium sized enterprises discover the advantages of enterprise-wide information management.

Despite some bandwidth and tariff structure limitations, E-commerce is growing steadily. Presently, there are about 1.9 million commercial Internet users in Austria, however this number is expanding rapidly.

Part 2 - The Marketplace for Business Process Technology

Software is rapidly becoming a determining factor in the development of a country's economic potential. Global business activities by companies require complex, multilingual, multi-functional, disseminated software solutions. The software must be globally integrated and standardized with interfaces to all possible available packages. Software solutions must take into consideration local regulations and laws governing hardware produced and sold by different manufacturers.

European standards will be developed which will facilitate entry into larger markets for application software.

New technologies, together with the larger market, into which they are introduced, will stimulate demand for new applications in networks, optical storage, image processing, multimedia services and more.

IBM is the largest IT vendor in Austria. However, there are approximately 50 additional U.S. IT firms selling their products and services in Austria. In addition, there is strong competition from European and Asian suppliers in this market.

September 11, the events of 2001 have corporations rethinking security in all aspects. The focus of IT security will shift from authentication, authorization, and administration the (3A's) to business continuity. Physical and IT security will become part of a single whole. This will provide opportunities for suppliers of IT services and products, but will create challenges for CIOs and IT managers.

Demand for information security services and security software is rising significantly.

Security technology is an important foundational element for many of the leading growth drivers in the IT market today, including Web services and digital identity services.

STATISTICAL DATA

ITC market Expressed in millions of US dollars

	ITC Market 2002	ITC Market 2003	ITC Market 2004	Est. annual growth rate over the next 3 years
Computer hardware	2,039.2	1,991.1	2,078.0	
Software products	1,463.5	1,244.0	1,310.1	
IT services	2,644.3	3,166.5	3,396.4	
<hr/>				
Total	6,147.0	6,401.6	6,784.5	6.0%

2003 import market share for USA: 34%

2003 exchange rate: 1US\$ equals €0.8843

Part 3 - The Marketplace for Communications Technology

Telecommunication market

Austrian telecommunication market employs more than 42,000 people: more than 20,000 are employed in the field of fixed-line services, about 15,000 in the telecommunication equipment industry, 7,000 are employed by mobile-phone operators and 3,000 by internet provider companies, cable TV services and value-added telecom services.

Austria generated USD 5.8 billion in telecommunication revenues in 2003. At the end of 2003, Austria had 4 million main lines in service. Competition has flourished in the Austrian fixed-line voice sector, demonstrated by the fact that at the end of March 2004 Telekom Austria, the market leader, had a market share amounted to 53 percent.

The Austrian Regulatory Authority for Broadcasting and Telecommunication (RTR) distributed 156 licenses for public telephone services in total, out of which 77 are leased-lines, 67 voice-telephony (fixed-lines) and 12 mobile-phone licenses (source: www.rtr.at).

RTR is an independent regulating body and is in charge of granting licenses, assigning frequencies, setting prices and terms of contracts, monitoring the market and arbitrating disputes.

Mobile phone services

At the end of 2003 Austria had a total mobile subscriber base of 7.3 million, equivalent to a penetration rate of 90.3 percent. This number increased up to 7.5 million in June 2004. Four network operators operate in the Austrian mobile-phone market: Connect Austria (One), Mobilkom Austria, Tele.ring and T-Mobile Austria. Mobilkom Austria, the mobile division of Telekom Austria, is the largest player with about 42 percent market share, followed by T-Mobile with 27 percent, Connect (One) with 20 percent and Tele.ring with 10 percent (data source: www.rtr.at, June 2004). Tele.ring is a subsidiary of the U.S. Company Western Wireless International, Bellevue, WA.

Internet services

At the end of 2003, Austria had 3.5 million internet-users (or 1.7 households). Telekom Austria is the largest player in the Internet service provider market, with 43 percent market share, followed by UTA with 16 percent and Chello with 6 percent. Chello is a brand name of the service offered by UPC Telekabel, a subsidiary of United Global Com, Inc., Denver, CO.

As in other Western European countries, players in the Austrian Internet sector regard the encouragement of broadband take-up as a key to increase revenue.

Broadband

In May 2003, the broadband penetration in Austria accounted for 16 percent of all households. Almost 60 percent account for cable TV net, 32 percent are ADSL of Telekom Austria and 8 percent go to ADSL of Internet service provider. All together, there are about 200,000 broadband connections in Austria (ADSL and Internet via cable). It is estimated that 30 to 35 percent of all Austrian households will have a broadband connection by the year 2008.

Part 4 - The Marketplace for Digital Equipment and Systems

The majority of white-collar employees in Austria use a PC at work. These office PC users are also use network and communications applications including e-mail, fax capabilities, the Internet and Intranets. Notebook computers have become more important, enabling traveling employees to maintain communications with the home office. Users of office PCs tend to buy from a value-added reseller who offers a tailored “solution” to a particular data processing need. Or they purchase their PC or notebook computer online.

Mainframe sales reached \$27.3 million in 2003, mid-sized systems \$108.4 million, and low-end systems amounted to \$182.4 million. Data communications equipment sales reached \$182.5 million, a decline of 2.4 percent from 2002. For 2004 the highest growth rates are forecast for mid-sized systems (12 percent) and low-end systems (7.5 percent). Mainframe sales will increase by approximately 3.5 percent in 2004.

Business spending has been affected by the overall economic slowdown and is not expected to recover before the end of 2005. As a result, commercial desktop sales declined sharply, and notebook shipments grew slightly.

On the consumer side, the focus clearly shifted to notebooks, as lower prices continue to attract more and more individual users. Consumer notebook sales recorded strong triple-digit growth. 2003 has also seen the growing share of the local firm Gericom.

Driven by aggressive pricing strategies and product positioning, the mobile PC market remained very competitive, with all vendors aiming at gaining share in a market that still presents a huge potential for growth. The adapting to 64-bit computing will slowly proceed. While companies like Hewlett Packard move forward with the application development for 64-bit, it is expected that users will move to 32-bit alternatives with 64-bit expansion possibilities if these options will be available. Full 64-bit use for commercial applications is expected for the second half of this decade.

The United States is the main source of imports, followed by Germany. Overall, sales for the entire computer hardware sector are expected to decline by 1.3 percent in 2004.

The Austrian digital camera market valued US\$ 147.8 million in 2003 and grew 96% vis-à-vis 2002. It is a market, which has truly captivated the Austrian consumer. The leading vendors in this market were Canon with a market share of 15.9%, Sony with a market share of 13.4%, Olympus with a market share of 11.3%, Fuji with a market share of 10.9%, Nikon with a market share of 9.7%, Kodak with a market share of 9.1% and HP with a market share of 5.6%. Other vendors had a share of 24.1%.

VGA and sub-VGA cameras are priced now below US\$ 60. Consumer point-and-shoot cameras are the traditional digital cameras. Resolution of these cameras currently ranges from 1MP models to 8MP models (e.g. HP's Photosmart 215 or Sony's DSC F-828). All

of the models have removable memory and a color LCD display that can display the images captured.

Disk storage systems

The Austrian disk storage systems market is a highly competitive market with a relatively low volume of annual array sales. At US\$148.7 million in end-user spending, Austria accounted for just 1.2% of 2003 disk storage systems spending in Western Europe, a value of approximately 1/10th the size of the German disk storage systems markets. The US\$148.7 million in disk systems revenue represented a 6.8% growth over the previous year.

New capacity shipments grew at a healthy pace of 69% in 2003. Austria's capacity growth contributed approximately 3% of total incremental capacity shipments throughout Western Europe. Of the 6.7 Petabytes of new capacity shipments in Austria 25% was from networked storage, 20% from external direct attached storage and 55% from internal direct attached storage. Storage spending was also driven by projects intended to increase data resiliency and to reduce data recovery/restore times. Such trends would certainly support the shift towards networked storage, which when appropriately designed and implemented, provides end-users with a much more resilient and efficient storage ecosystem.

A large portion of recent storage spending was within Financial Services, Telecom Services, Government and Healthcare industries. HP was the largest supplier of disk systems and accounted for more than 38% of total 2003 sales. IBM ranked second with more than 28% share. EMC ranked third with 12.6% of supplier revenue while Fujitsu-Siemens dropped to 8% share of the Austrian disk storage systems market.

UPCOMING EVENTS

IT Security Conference

Date: March 8, 2005

Organizer: Commercial Service Vienna

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Belgium

Capital:	Brussels
Population:	10.000.000
Languages:	Dutch, French, (English), German
Monetary Unit:	Euro
Exchange Rate:	0.82
GDP per Capita (in US\$):	\$31,800 (2005 est.)

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Part 1—Market Overview

Belgium is a small market of only 10 million people. However, the Belgian Information and Communications Technology (ICT) sector is doing very well and, over the past year, has grown significantly faster than the Belgian and, in fact, European economy all sectors combined. The ICT sector represents a turnover of 21.7 billion dollars for Belgium and Luxembourg. This year the Belgian ICT sector grew 3.2% slightly higher than western European average ICT growth of 3.1% and the overall growth of the Belgian economy of 2%. For the first time since 2000, the Belgian ICT sector is growing faster than the national economy. The Belgian ICT market growth will leap forward and is expected to reach 4.0% in 2004.

Belgium's telecom sector has been struggling over the past few years, particularly with regards to the liberalization of the European markets. Notwithstanding the liberalization of telecommunications in 1998, the fixed-line market is still dominated by the former monopoly operator, Belgacom, which is 51% state owned. There are about 40 other operators, but the only significant one is Telenet, which owns a substantial cable

infrastructure but has only a small share of the overall market. For the mobile phones there are three major players: Proximus (Belgacom), Mobistar (France Telecom) and BASE (KPN). All formally introduced third-generation (3G) mobile phones services in the third quarter of 2003 but have so far failed to market them.

The information technology market seems to be mainly driven by new investments by SMEs, the median being companies with a turnover of 5 million dollars. Computer hardware, personal peripherals, software and IT services are growing steadily. Only office equipment, data and network hardware are in decline.

Part 2—The Marketplace for Business Process Technology

All the big names in the IT business processes sector are present in the Belgian market: Oracle, PeopleSoft, Act!, Seibel and SAP. Microsoft is a new comer on the market looking to carve out its share of the CRM segment with its “sales” application. Competition between these companies is fierce. Ever since the IT bubble burst in early 2000, investment in the sub-sector has been nearly non-existent; most companies cancelled their IT projects. However, since 2003 investment has been resuming quickly. Big corporations are largely catered for; the SME market, on the other hand, is wide open and growing. SMEs are quickly realizing that they are behind the United States in terms of business processes and must catch up fast to remain competitive.

CRM and document management seem to be the main market drivers. Microsoft has anticipated this demand and is marketing mainly its CRM software to companies employing 5 – 150 people. According to the Belgian IT market intelligence group InSites, over the next year, 40% of Belgian companies intend to increase their IT budget by 10% to 15% for business processes; the main segment being firms with a turnover between \$500,000 to \$10,000,000. Only 1% of Belgian companies intend to decrease their IT budget.

Smaller companies will rarely contact the larger corporations such as PricewaterhouseCoopers or EDS. They view the service as disproportionately expensive

and will rather contact one of the 40 Systems Integrators on the market. These latter hold to themselves 20% of the entire IT market and tend to carve out their own niche market mainly: document management and archiving, telecom integration and CRM. American firms looking to penetrate the Belgian business processes market should contact the systems integrator that caters the target to the end-user.

Part 3—The Marketplace for Communications Technology

E-commerce fares well in Belgium; in 2003, of the 4.5 million regular surfers—representing 44% of the population, over 2.2 million Belgians made an online purchase, this is 4% more than last year. E-commerce in Belgium is worth 500 million dollars. The average e-shopper spends \$100 per year. Purchasing entertainment ticket (concerts, movies) and transportation passes (plane, train) represent 28% of online traffic. E-commerce has grown significantly over the past few years but may have hit a slower growth plateau. This is probably due to the stagnation of computer sales rather than true weakness of the sub-sector. Overall Internet access is fairly high in Belgium approaching 60% penetration. 84% of the Internet connections in Belgium are broadband, either ADSL or Cable. The weak link is the PC sales among senior citizens. Less than 50% of the 55-year-olds have access to a computer and the Internet and less than 20% of the 65-year-olds have access to these tools.

The number of companies creating their web sites is growing. According to 2003 market data 82% of Belgian companies have an Internet site. According to the OECD, 50% of the content of Belgium's registered domains are in English, while the rest is equally divided between French and Dutch. However, 24% of Belgian companies use an extranet with customers and 6% allow online transactions. Credit card purchases are becoming more widely accepted but there are still some security concerns. Concerning M-commerce, it remains very weak in Belgium.

The main hindrance for online buyers stems from technical difficulties. In fact, 20 % of Belgians find it difficult to buy online due to bad service design. There is therefore a market for products that increase user-friendliness of online purchases. A local company,

the Free Record Shop, is offering the possibility to order audio tracks online. Currently, they are offering over 500,000 tracks for download. This should be an excellent stimulant for the e-commerce market. Free record shop is competing with less well-established, iTunes, MSN, Skynet and Tiscali. MSN offers 6,000 tracks online.

Likewise, the demand for security appliances, multiple methods of payment (pay-pal has yet to catch on in Belgium), and Internet services is high. There is also a significant demand for telecom services including Text To Voice (TTV) and Interactive Voice Recognition (IVR).

Part 4—The Marketplace for Digital Equipment & Systems

Since the Dot.Com bubble burst in early 2001, the data storage/SAN market has been depressed. There were over investment, over capacity and nearly 25% of the data storage companies failed. They were bought at rock bottom prices and were consolidated. Despite, the infrastructure of the SAN market is aging and still operating under its capacity. Surprisingly, in the past three months it has known a pickup in demand.

According to SAN service providers, demand is expected to rise significantly over the next few years. Sources Inc. contends that, an upcoming change in European legislation requiring companies to archive data may further bolster the market. Security products are increasingly in demand. Of the estimated 3,500 companies that have storage demands, an estimated 75% still have to make their first step. Systems Integrators are looking for devices and software that can seamlessly handle iSCSI and Fiber Channel.

Interestingly the Belgian SAN market intends to acquire an extra Systems Integration type layer. Some companies on the market, such as Source n.v., will not sell hardware or software but will provide SAN solutions and will act as an intermediate between the end-user and the data warehousing company.

Traditional film development is down as the popularity of digital cameras grows. There has been a steady decline in the use and development of traditional film amid the rapid

rise of digital cameras. They currently represent 37% of the world market of camera sales, and this number is expected to grow to over 63% by the year 2006, according to National Imaging Distributors. The Belgian photo finishing industry is realizing the growing need for digital photo printing capabilities, and therefore the push for its growth will be welcomed within the country. Spector Photo Group and other Belgian photo finishing companies are developing methods of printing that are convenient and easy for consumers. Web-based and kiosk ordering are the chief forms of digital photo processing that are growing in popularity in Europe and specifically in Belgium.

There is also a strong market for document management and archiving such as technologies that scan and use Optical Character Recognition (OCR) to store and efficiently access documents for e.g. medical and banking services. American firms interested in penetrating this market should contact one of the 40 specialized Systems Integrators (SI) on the market. The U.S. Commercial Service maintains a list of qualified Belgian SIs. For more information please contact Mr. Ira Bel, Ira.Bel@mail.doc.gov or call +32 2 508 2434.

Part 5—Future Prospects in this Market

Best prospects in the Belgian ICT sector seems to be: SAN equipment, iSCSI and Fiber Channel compatible tools, network security appliances and related software. The market is also strong for solutions that improve perceived if not effective security of online transactions. CRM, data management and archiving are expected to grow steadily over the next year offering high opportunities for American companies operating in these sectors.

In the hardware/peripheral sector, consumers are increasingly interested in data storage equipment, PDAs (GPRS with Internet connectivity, possibly with GPS capabilities), WiFi, small/entry level servers, laser printers, color inkjet and multi functional printers, TFT and LCD screens.

In the software sector, consumers are interested in all types of standard applications, Internet and Intra- and Extranet software, web content management software and solutions, networking software and network security products, development tools, Windows, Linux and UNIX-based products, storage management software, CRM and ERP products, and application management products. There is a strong demand for game software tailored for the consumer market.

In the services sector, demand is focusing on desktop and network management, application hosting, security services (assessments and scans) and all types of Internet and E-Commerce-related services.

There is a growing demand for telecom equipment and services for mobile, fixed line telephony, cable, broadband, mobile (value-added) data services, and all types of Internet-related communication services. The Belgian market requires also: Outsourcing and maintenance of infrastructure installation, VoIP services for the business market, security applications for mobile communications, entertainment applications, multimedia services and applications, and communication security products and services.

Part 6—Important USDOC Resources in this Market

Mr. Ira Bel Ira.Bel@mail.doc.gov or call +32 2 508 2434 will be coordinating SCE program at CeBIT – March 10 – 13. The U.S. Commercial Service will be bringing over 22 ICT Market Expert to CeBIT and will offer free to American firms only the possibility to brief the Commercial Specialists on their product or service and the Specialists will give their feedback as to the U.S. firms' product potential in their respective markets. Again, this is a free program. Please contact Mr. Ira Bel at Ira.Bel@mail.doc.gov or call +32 2 508 2434 or call +32 475 29 69 85.

Local Market Commercial Specialist

Ira Bel

Croatia

Capital: Zagreb Population: 4.43 million Languages: Croatian Monetary Unit: Kuna (KN) Exchange Rate: 1 USD=6.092667 KN (Croatian National Bank mid exchange rate on Jan 30, 2006) GDP per Capita: \$6,224

Local Market Commercial Specialist

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Part 1 – Market Overview

After the liberalization of telecommunication services in 2005, the Croatian ICT market is showing indications of possible further consolidation, not only within certain subsectors, but among them as well. Besides the already established market leaders - T-Hrvatski Telekom (fixed voice/Internet, owned by Deutsche Telekom), VipNet and HT Mobile (GSM), Iskon (Internet) and Digital City Media (Cable TV) - a number of new entrants emerged in 2005 as a consequence of liberalization: Optima Telekom, Portus (fixed voice), Tele2 (mobile operator) and a number of existing ISPs offering VoIP. And while the number of mobile minutes continues to grow together with Internet usage, the number of minutes in fixed voice networks decreased in 2005 for the first time.

Mobile communications are the most developed market segment with 3 million users, out of which 208,000 are GPRS subscribers (mid 2005 data, some estimates for 2006 say the number of mobile users is as high as 3.5 million). Number of Internet users is estimated at 1.5 million. T-Hrvatski Telekom alone introduced over 100,000 ADSL connections by the end of 2005. The number of cable TV subscribers at the end of 2005 is estimated at 150,000.

Total population of 4.43 million

Croatia

Total number of 1.36 million
employed people, 2005

Average net monthly EUR 600
salary

Part 2—The Marketplace for Business Process Technology

The local branch office of IDC reported that the Croatian market for IT services in 2004 increased by 16 percent in dollar terms, to USD 168 million. The growth estimate for 2005 is around 11 percent (to USD 185m). The four leading providers of IT services in 2005 were IBM Services, S&T Hermes Plus (a subsidiary of Austria's S&T group; recently merged with InfoNet Projekt, one of the leading IT services firms), Siemens and HP.

Hardware and software support and installation services are the leading sub-sectors with almost 40 percent of total IT services spending, while software customization services are at the second position. The government (central and local combined) was surpassed by the banking sector as the largest spender in this area, followed by telecommunication companies. The three sectors combined accounted for almost 50 percent of IT services spending.

Part 3—The Marketplace for Communications Technology

Company	Sector	Ownership	revenues, EUR million (for 2004 if not stated otherwise)	Number of subscribers
T-Hrvatske telekomunikacije (T-HT)	fixed voice/data telecommunications	51% Deutsche Telekom, Government of Croatia	960	1,825,000
HT Mobile (GSM/UMTS)	mobile telecommunications	T-HT	460	1,600,000
VIPNET GSM Ltd. (GSM/UMTS)	mobile telecommunications	Mobilkom Austria	390	1,500,000
T-HT	Internet	part of T-HT	n.a.	n.a.
Iskon Ltd.	Internet	Adriatic Net Investors Ltd., CALPers, Proficio Inv. Fund	8.8	n.a.
Digital City Media Ltd.	Cable TV	SEAF, SEAF Growth Fund, SEEF	4.3	40,000 (2004)
Adriatic Kabel Ltd.	Cable TV	Copernicus Capital Partners Investment Fund	0.9	12,000 (2004)

[Hrvatske telekomunikacije](#) (T-HT), 51 percent owned by Deutsche Telekom, is the incumbent operator in Croatia. [T-HT](#) has installed capacity that could serve 2.3 million subscribers, while the actual number of fixed telephony subscribers at the end of 2005

was 1.9 million. The company has 6,860 employees and generated revenues of EUR 960 million in 2004, unchanged from 2003. [T-HT](#)'s competition is in the early stages of marketing and doesn't reveal its user statistics.

The total number of mobile subscribers in Croatia at the end of 2005 is estimated at 3.4 million, approximately equally divided between [HT Mobile](#) and [VIPNet](#), while [Tele2](#) has only a minor share, as it became operational late in 2005.

In 2004, [HT mobile](#) recorded revenues of EUR 460 million (980 employees), while VIPNet generated revenues of EUR 390 million and EUR 187 million in the first half of 2005. Average revenues per user are currently (end of 2005) estimated at EUR 20.1 per month. User data for Tele2 is not available.

Mobile Communications

Total number of mobile subscribers	3.4 million (estimate)
Prices per minute for pre-paid users within a network (HT Mobile/VIPNet)	EUR 0.16/EUR 0.16
Price per 1MB of data via GPRS/UMTS (cheapest tariff, subscription not shown)	EUR 0,11/EUR 0,11
Price per SMS message (HT Mobile/VIPNet)	EUR 0,05/EUR 0,06
Total number of SMS messages	+2.2 billion

Until a year ago, the Internet market was probably the least developed of all telecommunication market segments in Croatia. There are only 6 ([T-HT](#), [Iskon](#), [GlobalNet](#), [At&T](#), [Vodatel](#) and [VIPonline](#)) significant ISPs and one academic ISP ([CARNet](#)), serving the total number of around 1.5 million users. [T-HT](#) has the largest market share and has registered its 100,000th DSL subscriber at the end of 2005. [Iskon](#),

the second largest ISP, recently announced its plans to re-capitalize through an IPO during 2006.

Internet (numbers of users and subscribers are estimated)

Total number of Internet subscribers	800,000 (estimate)
Total number of Internet users	1,500,000
Number of DSL subscribers	110.000
Monthly DSL subscription	starting at EUR 13 (512/128KB) to EUR 52 (2.0MB/256KB)

[Digital City Media](#) (DCM) and [Adriatic-Kabel](#) are still the leading cable TV providers. They regularly offer Internet access, however, at prices somewhat higher compared to the DSL packages offered by [T-HT](#). The total number of cable TV subscribers is estimated at approximately 150,000.

Cable TV

Total number of cable TV subscribers	150,000 (estimate)
Price for basic program package	starting at EUR 8 per month
One-time connection fee	EUR 43
Price for Internet access via cable	starting at EUR 13/month

Part 4—The Marketplace for Digital Equipment & Systems

In the first half of 2005, 93,000 PCs were sold in Croatia, a 35 percent increase compared to the first half of 2004. Within this figure, laptops recorded the largest growth, almost 70 percent compared to the same period last year. HP is the leading vendor among “brand name” computers, followed by Lenovo-IBM and Dell. Overall, HP was the leading supplier with 19.2 percent of the market, followed by local companies M San and King ICT with 10.6 and 10.0 percent market share, respectively. For the entire 2005, it is estimated that the number of PCs sold in Croatia reached 200,000.

Part 5—Future Prospects in this Market

New fixed operators will continue to be the main source of demand for telecommunications equipment, as their licences require them to invest approximately EUR 100 million in the period of 2005-2010.

Ericsson and Siemens are the two traditional suppliers to fixed and mobile operators in Croatia; both firms have manufacturing/servicing subsidiaries in Croatia. In 2004, Siemens Croatia employed 1193 people and recorded revenues of approximately EUR 190 million, while Ericsson Nikola Tesla d.d. had 1150 employees and generated revenues of EUR 230 million.

Part 6—Important USDOC Resources in this Market

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Czech Republic

Capital: Prague Population: 10,758 million Language: Czech Monetary unit: Czech Koruna Exchange rate: \$1=22CK GDP: per capita: 12,690

Part 1 - Market overview

The market in the Czech Republic is considered open, there are no tariff barriers. During the past five years, Czech Republic made a considerable progress in expansion of IT usage and investment. Governmental purchases and focus on small and medium size business are increasing, creating opportunities and enabling the market to grow steadily. IT ratios are approaching the standards of the original members of EU. In mobile telephony, the figure is far exceeding the average EU figure. Considering, CR is a country with the population of just over 10 million, the number of mobile phones reached 12 million towards the end of 2005. However, as far, as Internet is concerned, there is still room for improvement. The Internet penetration have some way to go. There are 29 percent of households and 90 percent of businesses with Internet access. Internet access has become crucial for Czech business. Since the introduction of ADSL, the market opened and progressed still further.

Overall spending on IT reached 5, 8 billion dollars in 2005.

Part 2 - The Marketplace for Telecommunication Technology

Telecommunications still represents of one the most dynamic sector in the Czech Republic's ICT market. The industry is experiencing yearly growth, and this trend is expected to continue.

In June 2005, Czech Government sold Cesky Telecom to Spanish Telefonica. Until then, Telecom was the dominant operator, mainly in fixed telephony. It used to own the old public network, creating a monopoly. With the sale, further liberalization has taken place. Main area of production – telecommunication technology and electronic components, is worth almost 19 percent of the market.

Overall spending on telecommunications equipment and services exceeded just over two billion dollars last year. This is mainly due to massive use of mobile telephony.

Penetration in the Czech Republic reached 90 percent at the beginning 2005. Some expansion, although to a smaller degree, was experienced in fixed lines. All exchanges are fully digitalized. Czech Republic, as a member of the EU went through homologation process just over three years ago. The latest trend in the Czech Republic, is to cancel telephone fixed lines, and buy another mobile phone instead.

Telecommunications – Main Indicators Mid-year 2005

Subscriber lines – fixed network 6,18 million clients

Mobile subscriptions: the main three operators

T-Mobile 4,45 million clients

Eurotel 4,42 million clients

Vodafone (formerly Oskar) 2 million clients

Leading companies:

Telefonica – formerly Cesky Telecom, Eurotel, T-Mobil, Cesky Mobil, Ceske

Radiokomunikace. Vodafone plans to launch UMTS network in 2006.

Part 3 - The Marketplace for Digital Equipment & Systems and Business Processes

Expansion in the PC market continued during 2005. The government is still pursuing the adopted “State Information Policy Strategic Plan”, in order to promote and upgrade the expansion of IT.

A new law on electronic communication has been passed, enabling e-commerce to be used much more widely in public sector. Electronic signature is legal on Tax returns, for example.

Computer and office equipment hardware accounts for a very large share of the IT market. The market is gradually shifting to software and services. Hardware investment is confined to replacement, upgrades and acquisition of new technologies. The expenditure

for IT were 3.9 percent of Czech GGP in the middle of 2005, placing the Czech Republic around the half way mark of EU member states. The share of VAT from IT to private sector is 1.3 percent. IT represents almost 15 percent of the total market, making it third largest in Central / Eastern Europe.

Share of sales: Hardware 45 percent
 : Software 15 percent
 : Services 40 percent

Market driving forces - the banking sector, state authorities and institutions, media sectors. To some degree - SME.

Major players

SWS, Oracle, Auto Cont Cz, Unicorn, Hewlett-Packard, Microsoft, eD'T-Systems, Oracle, CompuSource/MacSource, IBM, Unysis, Sun Microsystem.

Technology used – Microsoft, IBM, Sun Systems, Oracle, Lotus, Novell, Citrix, Spectrum, Crystal Decisions, Compaq, DBI, Symantec

Part 4 - Future Prospects in the Market

U.S. companies will find very good prospects in the following sectors: Electronic components, Network equipment, Wireless equipment, Data service equipment, Voice service equipment, Video-conferencing equipment

The expected growth of the IT / Telecommunication sectors, in the current year, is 8 percent.

There are no specific regulations or restrictions for the import / export of software and hardware. However, as a result with complying with EU regulations, some products are listed as controlled. The market is considered to be open, with a decreasing tendency of non-tariff barriers. The system is very similar to other EU countries.

For further detailed information on specific import requirements, please visit:

General Directorate of Customs: <http://www.cs.mfcr.cz>

IT Ministry: www.micr.cz

Institutions supporting IT:

Association for e-commerce: www.apek.cz

Center for e-commerce: www.e-commerce.cz

Association for Information Society: www.spis.cvz

Please visit: www.export.gov/cs and www.buyusa.gov/czechrepublic

Czech IT products sell abroad quite moderately. Czech companies are more and more desired for venture capital, or to serve as a local supplier of multinational companies. Hiring local companies to develop software according to specifications of a given company is also popular.

Leading Suppliers by Industry Sector

Operation systems – Microsoft 97 percent

Servers – Intel platforms – 87 percent

Integrated business applications – Unix 40 percent, Windows NT - 41 percent

Hardware – IBM platforms 32 percent

Software – SWS, AutoCont, Abakus distribution, PVT - 48percent

Databases – Oracle - 50 percent

Services – IBM, PVT, Hewlet-Packard, Compaq, Logica - 31percent

Anti virus – Grisoft Software

CAD and other multimedia – PragoData, PJ Soft

System Integration – ICZ, PVT

Local companies cover approximately 55 percent of the market.

US DOC Resources in this Market

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INTEC

04/13/2006 – 04/17/2006 Prague, Letnany Exhibition Hall

International Information Technology Show

www.terinvest.com/intec

Denmark

Capital: Copenhagen Population (January 1, 2005): 5.383.507 Languages: Danish Monetary Unit: DKK Exchange Rate: (publisher to insert at press time) GDP per Capita (in US\$): 40.650

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Part 1—Market Overview

Denmark has a strong international position in the IT and wireless sector and a first class telecom and data infrastructure. Denmark has one of the highest rates of Internet penetration, mobile phone penetration and e-business implementation in Europe, together with one of the highest IT spending level per capita in the world. Denmark is an excellent test market for new products/technologies and exporters due to its manageable market size. The general willingness by the population to exploit the newest technologies are also examples of the IT readiness of the entire Danish society.

The Danish government has actively encouraged competition in the telecommunications sector and the market is one of the most liberal in Europe. TDC (previously called Tele Danmark) is the dominant operator in fixed networks due to the ownership of the old public telecommunications network. An increasing number of the 275 Danish municipalities are investing in their own fiber-optic networks, which is rapidly increasing the country's broadband capacity

Part 2—The Marketplace for Business Process Technology

The Danish ICT sector is structured towards a service market rather than a production market. The worldwide downturn in the ICT market is now leveling off for Danish companies and since September 2003, there have been a positive development in the market. A new market analysis of the IT sector by the Danish IT Trade Association predicts even better times ahead with increased orders, growing production and new jobs as a final proof that the industry is coming out of its slump.

Denmark has been on the innovative forefront for many years regarding the development of business process software. Microsoft's purchase of Copenhagen based Navision was a clear indication of that. Navision was a leading global provider of integrated software solutions for small and medium-sized businesses and was acquired for approximately US\$ 1.75 billion, which was Microsoft's second largest deal ever.

Outsourcing of IT functions and software development in the public and private sector is a big growth area. The Danish market for IT outsourcing is DKK 7.6 billion in 2004 and is expected to grow by 10 percent in 2005-06. According to a recent survey, more than 50% of the existing IT outsourcing agreements in the public and private sector are due for renegotiation during the coming years. The contracts are expected to be worth DKK 3 billion (USD 500 million), although the majority is expected to keep their existing suppliers.

Part 3—The Marketplace for Communications Technology

Telecommunications - Main indicators, mid-year 2005

Subscriber lines – fixed network	3,543,000
Subscriber lines per 100 inhabitants – fixed network	65.6
xDSL subscriptions	562,000
Cable modem subscriptions	250,000
FWA subscriptions	3,019
Mobile subscriptions	4,868,921
Mobile subscriptions per 100 inhabitants	90.1

Mobile telephony – subscriptions and market shares

“3”	50,359	1%
CBB Mobil	184,238	4%
debitel	303,293	6%
Orange	612,420	13%
Sonofon	1,027,940	21%
TDC	1,574,132	32%
Telia	463,672	10%
Telmore	502,566	10%
Others	150,301	3%
Total	4,868,921	100%

Source: Danish IT and Telecom Agency, 2004

Denmark has a comparatively high distribution of mobile telephony. There are four companies with established GSM mobile networks in Denmark. There are also a number of companies who only offer mobile services through leasing within these networks.

Denmark awarded its third generation (3G) universal mobile telecommunications service

(UMTS) licenses through an auction in September 2001 to four operators. Currently, the GSM network is the most common in the country but the general packet radio service (GPRS) system, built upon the existing GSM network, is also operative in many parts. In October 2003 the company Hi3G launched the first 3G service (under the name “3”) in Denmark, which uses W-CDMA. Sweden’s Ericsson supplies 3’s network, radio equipment, services and transmission. While 3 initially offered Motorola’s A920 handset as the only option, the handset market has expanded to many other brands, as the number of subscriptions has grown bigger. By August 2004, “3” had more than 50,000 customers in Denmark. The three other operators (Denmark’s TDC, Finnish-Swedish TeliaSonera and Sonofon) have launched – or are expected to do so soon - some 3G services, but mostly on a b-to-b basis. 14,000 broadcasting masts have to be raised to cover Denmark entirely.

The current status is that 98 percent of all Danish households and businesses can have ADSL via traditional telephone lines. 60 percent of all households have access to cable modems via upgraded cable TV networks (TDC) or community antenna systems, which are chiefly privately owned or owned by the local authority. FWA is available in most of the country and is primarily aimed at business customers.

In the past year, the penetration of broadband has risen markedly in all parts of the country. Broadband is used increasingly both in urban areas and rural districts. The number of broadband connections totalled more than 1 million at a national level, in the form of ADSL, cable modems and local area network (LAN) connections in building associations - primarily Fibre/LAN. This corresponds to nearly 19 connections per 100 inhabitants, compared with just over 13 connections per 100 inhabitants at the end of 2003. This is an increase of more than 40 percent.

Part 4—The Marketplace for Digital Equipment & Systems

The use of information technology at the workplace is widespread in Denmark. About 95% of Danish businesses with at least five employees use information technology, and almost all of these (89%) have internet access. Moreover, growing complexity in public

IT solutions coupled with the increased demands for e-government and electronic services for the public (such as tax statements or social security payments) have amplified the need for coordinated government IT usage.

Internet shopping is generally growing among the Danish population, Entertainment and books, magazines and newspapers make up the largest proportion of what Danes buy over the internet, but an increasing number is also purchasing electronic equipment such as MP3 players, mobile phones and PDAs. In addition, travel-related products are also very popular among the Danish internet consumer.

Danish consumers are generally affluent, as well as highly trend-conscious, and there is high potential in the top-end of some markets, both for replacement products (laptops is almost more widely sold than standard PCs) and for home entertainment (DVD players, digital recorders, flat screen TVs and other sophisticated digital equipment). Home-based wireless computer systems are also becoming very popular.

Part 5—Future Prospects in this Market

The Danish market is often used to test new IT products and prototypes. Tests may include product tests concerning e.g. usability and commercial tests to shed light on a product's potential in the market. The affluent Danish market with strong buying power, sophisticated consumers with a preference for high end, advanced IT products, the high number of families with computers at home, the magnitude of Internet usage and the high educational level of the average citizen contribute to Denmark's position as a favorite test market.

Another important reason why Denmark makes a great testing ground for new IT products is the fact that the Danish market is relatively small and homogeneous. The homogeneity is reflected in the demand patterns of the population. This means that once demand for a specific product or a type of product penetrates the consumer segment, it reaches a critical mass in the course of a fairly short period of time. The high penetration of PCs, internet usage, IP telephony, mobile phones and most recently the usage of SMS

and MMS messages in the population, reflects the maturity and advanced level of the consumer market.

With faster and cheaper access routes to the internet there is an increasing market for related products and services. One of these markets is the access hardware that enables people to get onto the internet, this be servers, routers, cable modems etc, but also wireless devices for households and “hotspots”. Another interesting market is for related hardware and software solutions utilizing the fast gateways through Virtual Private Networks (VPN’s) and telecommuting. Another potential market is for online services such as video-on-demand, music and games.

Part 6—Important USDOC Resources in this Market

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Finland

Country/market:	Finland
Capital:	Helsinki
Population:	5,236,611
Languages:	Finnish (92%), Swedish (5.5%)
Monetary Unit:	Euro
Exchange Rate:	0.82
GDP per Capita (in US\$):	\$29,790

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www.BuyUSA.com

Part 1 – Market Overview

Finland has a highly industrialized, free-market economy, with per capita output roughly that of the UK, France, Germany, and Italy. Largely due to the Finnish government's strong investment in technology, expertise and education, Finland is consistently ranked as one of the most competitive economies in the world. The government's economic policy is strongly technology-based, with R&D expenditure accounting for 3.5% of the

GDP last year. It is estimated that growth of R&D expenditure was fairly slow in 2005 and the GDP share will remain on level with the previous year. By international comparison, the GDP share of R&D expenditure in Finland is still among the top in the world, preceded only by Israel (4.9%) and Sweden (4.0%).

Although with only 5.2 million people the Finnish market is small, Finns have proven to be quick to adopt new technologies. The telecommunications market in Finland is fully liberal – no licences needed, except for digital television networks and building mobile networks. Finland's Ministry of Transport and Communications is responsible for licensing. The fact that Finland was among the first to open its telecommunications market has resulted in the lowest mobile tariffs in the OECD countries. In mobile phone penetration, Finland is among the world leaders. According to a survey commissioned by Statistics Finland in March 2004, 96% of households had at least one mobile phone. With an Internet penetration rate of 62.6%, Finland is among the top nations in Internet use, and is the world's leading country in electronic banking. The popularity of broadband in Finland has also grown very rapidly. In 2005, broadband penetration grew from 11% to 18.7%.

Part 2 – The Marketplace for Business Process Technology

The enterprise solution market, including software and services of Finance Management, HR, CRM and SCM was valued at about \$790 million in Finland in 2003, and annual growth of approximately 8% is expected to continue to 2008. Oracle and SAP are among the largest players, and there is also competition from smaller local enterprise software providers such as Solteq and IFS that mainly target the small and medium enterprise market, competing with Microsoft. Finland's market for solutions catering large companies is very small and highly competitive, and any opportunities that may exist are in the SME market.

One of the fastest growing sectors is security software market, which is dominated by highly specialized companies, such as Symantec, F-secure and Checkpoint. Out of the

major software houses only IBM and Computer Associates are among the ten major players. IDC estimates that by 2007, security software will cover nearly 30% of the platform software market.

Part 3 – The Marketplace for Communications Technology

Finland's telecommunications market is one of the most developed in Europe and arguably one of the most developed in the world. The number of mobile phones far exceeds the number of wired phones, and has done so since 1998. Much due to the fact that Finland has the lowest mobile phone rates in the OECD countries, the popularity of wired phones is declining, and the market is undergoing consolidation. On the other hand, popularity of mobile phones continues to increase. The two major operators in the fixed-line telecommunications market, Elisa Communications Group and TeliaSonera are in the process of acquiring smaller local companies. Most smaller Finnish telephone companies operate under the Finnet group, which is the third largest player in the fixed line market. The major players are facing increasingly strong competition from newer providers of fixed line, mobile and Internet services, the most important of which are Saunalahti, Tele2 and Song Networks.

As of July 2003, mobile customers have been able to switch operators while preserving their mobile numbers. This has made switching operators more attractive to customers, and thus substantially increased competition between service providers, in the already highly competitive telecommunications market.

In an effort to expedite the development of the market for third generation services, in April 2004, the Ministry of Transport and Communications decided to ease the terms of its UMTS licences in Finland. Licensees are allowed to jointly construct and use a portion of their networks. However, each licensee's own network has to provide 35% coverage of the population.

Third-generation mobile networks are currently being set up in Finland. The operating licences allowing construction of these networks are held by Elisa Corporation (Radiolinja), Sonera Mobile Networks Oy and Finnet Networks Ltd. Both TeliaSonera and Elisa have already opened their UMTS networks for commercial use in Finland. On June 22, 2005, the government granted an operating licence to Digita Oy to build a new digital mobile communications network, using Flash-OFDM technology. It will be the first time in the world this technology will be put to extensive use in mobile networks.

Online shopping in Finland is increasing rapidly. According to the data collected in January and April 2004, about 70% of 15-74 year-old Finns had used the Internet during the last three months and about 15% (more than 590,000 persons) had ordered something for personal use via the Internet. The proportion of those who had paid their purchases on-line was 10% of the total target population (about 400,000 persons). Young people were most active - 43% of the on-line shoppers were aged under 30 and 70% were under 40 years. Also, gender differences in on-line shopping have disappeared, with women constituting approximately 50% of all Internet users and of those who had bought commodities via the Internet. In 2005, the value of purchases made with Visa and MasterCard through the Internet increased by 56%, reaching 70 million euros.

Payment of services through the mobile phone is yet to catch on – only 5% had paid goods or services by mobile phone. Though some services have gained popularity; public transport tickets and soft drinks from vending machines were the most frequent purchases.

On January 29, 2004 the Government adopted a resolution on the national broadband strategy to promote the spread and availability of broadband. An additional resolution specifying new goals was passed on February 3, 2005. The original resolution has been successful. In OECD's October 2005 Bandwidth Report, Finland had the highest broadband penetration growth of all the countries surveyed. The strategy aimed at one million broadband connections by the end of 2005. This goal was exceeded well before

the deadline. In September 2005, the number of broadband connections in Finland had reached 1.1 million.

The spread of broadband connections will continue to be promoted through numerous measures. Competition will be promoted within and among all communication networks. The measures will also speed up the introduction of new broadband technologies and increase the provision of network services and content.

Part 4 – The Marketplace for Digital Equipment Systems

The United States is Finland's leading external source of computers and peripherals. There are about 4,200 local computer related companies in Finland, 3,700 of which have less than five employees. The five largest companies cover about 60% of the industry sector's sales volume.

The Computer market in Finland has continued its growth that has lasted for two and a half years already. In 2004, the growth in the total number of sales was 19%, and strong sales continued in 2005. The rapid growth in the popularity of broadband, digital music and digital photography has boosted PC-sales. HP reached record sales growth of 31% in the fall of 2005. By late 2005, the penetration of personal computers in Finland had reached 66%. This growth is expected to continue, fuelled by the popularity and falling prices of portable computers. Other consumer electronics markets in Finland also grew in 2005. While the sale of flat screen TVs almost trippled, the sales of other entertainment electronics grew modestly by 4%. The sales of mobile phones grew by 27%.

Part 5 – Future Prospects In this Market

Although highly competitive, the telecommunications sector is growing fast, with high demand for Internet and mobile services and content expected to continue. With the increasing numbers of broadband Internet connections, e-commerce is expected to benefit. Demand for home entertainment electronics, digital cameras and mp3 players will also remain high.

For companies, the security sector is growing and although competitive, the market offers opportunities for high quality products. The Finnish market is small, and large companies are few in number – and they tend to have established software systems. Therefore, the software market opportunities for U.S. companies are mostly within the SME market.

Due to high technical standards and the liberalized telecommunications market, Finland serves as an excellent test base for new technologies for U.S. IT companies. Finland also has expertise in developing computer software products and is looking for U.S. partners who can provide funding. U.S. IT companies wishing to enter the Baltic markets and Russia (especially St. Petersburg) should view Finland as a natural gateway and Finnish companies as experienced partners in any such effort.

Part 6 – Important USDOC Resources in this Market

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France

Capital:	Paris
Population:	62.4 million
Languages:	French
Monetary Unit:	Euro (EUR)
Exchange Rate:	1 USD = Euro
GDP per Capita:	\$32,340

Local Market Commercial Specialists

Myrline Mikal-Goide (Telecom)

Charles Defranchi (Hardware/Software)

Part 1 - Market overview

France has the third largest IT market in Western Europe, after Germany and the United Kingdom. France's IT market, which includes computer hardware, packaged software, and IT services was valued at USD 52.7 billion in 2004 and represented approximately 17 percent of the total western European IT market. Computer hardware, including local-area- and wide-area-networking equipment, was the next largest segment, accounting for approximately 29 percent and valued at USD 15.2 billion.

The computer & peripherals market has grown by 8 percent in 2005 from 5 percent in 2004. It is anticipated to reach a 10 percent growth in 2006. The market is more than ever boosted by the sale of consumer electronics, especially mobile devices such as smart phones, I-mode, 3G and PDAs. The level of penetration in individual homes is 43 percent.

The French public sector has greatly contributed to the boost in IT sales, as it currently represents 6 percent of total IT investments. The French government continues its effort to maximize the use of the Internet in order to improve the quality of its service to the

public while generating significant savings. Its Government Action Program for an Information Society (PAGSI), launched in January 1998 has invested billions of dollars in the automation of three key services: VAT declaration, customs declaration, and the filing of social contributions by employees. In addition, more and more of the French taxpayers fill out their income tax report on the Internet.

The French broadband market is going through an amazingly dynamic phase of growth and convergence. Fiber optic cable already forms the backbone of the French fixed line network, with direct links to large businesses and government administrations. Fiber connections to businesses will continue to increase in 2006, while the first major residential connections (FTTH) have already started. The number of traditional wire line broadband connections to French residences is increasing steadily, dominated by ADSL. Usage of broadband capable, also known as “Third Generation” cell phones, is also growing, as they aggressively target a maturing French mobile sector. Wireless broadband connectivity is increasing as well, especially through the spread of public hot spots. For consumers, this rising access to broadband is enabling and driven by the growth of e-commerce and e-media consumption in France. For businesses, broadband connectivity is an increasingly integral part of marketing, communication and distribution strategies.

General French business and consumer commitment to broadband consumption is clear; French Voice Over IP (VoIP) retail subscribers already number 1.5 million. French consumer preferences seem to adapt quickly to the continuing convergence of technologies though consumer demand for such services as video on demand, mobile television and videophones is still in its infancy. Also the exact combination of standards (UMTS, Wi-Fi, WiMax, fiber, ADSL etc.) within France’s telecom infrastructure is still being established. However, as broadband demand matures the French market for telecom infrastructure, equipment, software and support services will offer many exciting prospects for American exporters.

Part 2 - The marketplace for business process technology

After a welcome recovery in 2004, the French market for software and services has marked an average growth of 5 percent in 2005 pulled by demand in consulting services (4 percent growth), Engineering services (3 percent growth), facilities management (9 percent growth) and software tools and applications (5 percent growth). The most dynamic sectors are found in the field of telecommunications, the media, as well as that of government and finance.

Estimated at USD 50 billion, the French IT market ranks third in Europe after Germany and the United Kingdom, with 17 percent of Europe's overall IT market. France is also the leading European nation in IT software and services, with USD 39 billion in sales in 2005.

Over 6,000 French firms specialize in software services, 2,000 of which count 10 employees or more. Key activities in this market are engineering and integration (23 percent); software development and technical assistance (22 percent); packaged software (21 percent); facilities management and on-line services (20 percent); consulting services (8 percent); training services (3 percent); and third-party maintenance (3 percent).

The ten largest software services firms in France are: IBM (USD 2.95 billion); Capgemini (USD 1.7 billion); Atos Origin (USD 1.68 billion); Microsoft (USD 1.45 billion); HP (USD 933 million); Accenture (USD 835 million); Altran (USD 772 million); Sun (USD 679 million); Econocom (USD 610 million); and EDS (USD 593 million).

Packaged software is sought by organizations as a cheaper alternative to customized solutions. The French packaged software market is valued at USD 8.2 billion. It is anticipated to grow at a rate of 5 percent until 2007. The ten largest packaged software firms in France are: Microsoft (USD 1.13 billion); IBM Software Group (USD 630 million); Oracle (USD 275 million); SAP (USD 245 million); Alcatel Services (USD 162 million); Sage (USD 120 million); Computer Associates (89.8 million); Dassault

Systèmes (84.3 million); CCMX (USD 72.1 million); and GFI Informatique (USD 68.7 million).

Part 3 - The marketplace for communications technology

In March of 2005 the European Association for Competition in Telecommunications announced that France had become the largest broadband market in Europe. Indeed French broadband subscriptions have grown by over 67% in the last year alone and now exceed 7 million, surpassing traditional dial-up usage for the first time. Revenue from these high-speed subscriptions alone already exceeds \$1 billion annually. In France the overwhelmingly dominant mode of broadband connection is ADSL, representing 94% of broadband connections and 97% of growth. Reliance on ADSL helps explain why broadband growth in France has been primarily driven by pro-competitive regulations leading to the accelerated unbundling of French wire lines. Also fueling competition is the rush to provide ever more convergent broadband services. Most French Internet providers already offer VoIP, a service that now has over 1.5 million customers. The top ISPs also offer Triple Play services (data, television and voice), a package that is quickly converging with mobile and wireless components.

The arrival at the end of 2004 of third generation (3G) or UMTS cell phones, marked the emergence of broadband as a force in the French mobile sector. French cell phone usage is finally catching up with the European average, topping 70% penetration in 2005. France's main cellular carriers have made enormous investments in 3G development, spending several million dollars on the licensing alone. When fully developed France's 3G market will be highly lucrative. Despite its stuttering start, 3G subscriptions in France generated some \$7 billion in 2005 alone.

Broadband is also growing in France through the emergence of wireless connectivity in both public and private domains. In June of 2005 France approached 9,000 wireless zones, with a long-term projection of 100,000. Growth has been aided by standardization measures that have ensured interoperability of devices across different wireless zones.

Internet providers increasingly promote modems that can stream wireless media to Wi-Fi and/or Bluetooth enabled TVs, computers and telephones.

Internet Providers and the Convergence of Broadband Services

The trend in French Internet consumption is more connectivity, providing more services at faster speeds for less money. The number of high-speed Internet subscriptions has surged each quarter growing by 67% in the last year alone to a total of nearly 7.4 million subscriptions. This high-speed connection growth reflects both a replacement of lower speed connections and a conversion of brand new Internet users. In 2005, it is estimated that 54% of the French public has a regular Internet connection, up from 37% in 2003. The vast majority (94%) of current high-speed residential connections are through ADSL. Providers of ADSL are looking to solidify their technology's predominance in France in the next couple years with the introduction of an even faster standard, usually referred to as ADSL2+. The faster form of ADSL is already being rolled out in 14 prominent French cities. A technology beyond ADSL2+ called VDSL is also on the horizon. Both developments represent a significant commitment in France to invest in their high-speed network; over 98% of the country has some kind of DSL coverage.

Broadband Connectivity To Mobile Telephones

Mobile usage in France has traditionally lagged behind the European average, but 2005 has shown the country is catching up. The penetration rate is approaching 75% for the first time, up from 55% as recently as 2002, and usage continues to grow by 17% annually. The conversion of the French consumer to mobiles has been helped along by the widespread adoption of SMS or text messaging as a preferred means of communication. French mobile users send an astounding 1.05 billion text messages a month, a figure that continues to grow by 7% each quarter. Even though consumers prefer text messaging because of its low price, it still manages to generate revenues of over \$350 million per quarter for mobile service providers. Since 2002 French consumers have been moving away from GSM handsets in favor of 2nd generation GPRS models. In 2005 GPRS handsets accounted for nearly 60% of the markets, while GSM phones fell to 40%. UMTS or EDGE handsets in particular are still expensive, especially when

compared to established GPRS models. Still France's principal mobile operators are highly committed to the future of 3G. The major operators are hoping to leverage the higher capacity of EDGE or UMTS networks to emphasize how their connectivity services go beyond mobiles to laptops, PDAs and pocket PCs.

Internet Usage

Traditional Internet usage is well established in France. Over half the country (54%) uses the Internet on a regular basis. The top reasons for usage continue to be for simple research and communication illustrated by the fact that over 95% of online users have e-mail. The French government is actively encouraging Internet usage, notably through its promotion of on-line governance and the prevalence of Internet in schools.

Over 25 million French people regularly access the Internet, a 10% increase from 2004. In addition, 15 million users can access high-speed Internet from their home, either through cable or ADSL, which represents a dramatic 53% increase from the previous year. The widespread availability of high-speed Internet connections has greatly stimulated demand for IT solutions because they make applications run faster and provide richer audio-visual content.

E-Commerce

Until recently France did not possess a substantial e-commerce market. With online purchases accounting for only 3% of total sales, it ranked 12th in Europe in 2003. The trend used to be that French consumers would only research products on line, not buy them. French consumer behavior has changed dramatically in just the past year, as France has emerged more and more as a significant e-commerce center. In 2003 only 9% of French Internet users made on line purchases, by 2005 that figure has soared to 51%. The first quarter of 2005 alone counted over 13 million e-commerce transactions in France, a growth of over 96% from the previous year. Led by the traditional e-commerce leaders of leisure travel, media and banking, online purchases in France have gone from rare to commonplace in a matter of months. Over a third of adults now use on-line banking services, and annual revenue from music downloads alone is projected to be over \$120

million by the end of 2006, a 400% growth in just over 2 years. Businesses across the country are moving to introduce or expand their e-commerce operations.

Security

Security is a major concern of the French consumer in regards to their online activities. French consumers have proven a willingness to pay greater amounts for better service, which for Internet services means better security. As broadband usage increases so will the demand for protection of online transactions, and the need for evolving solutions to old and new Internet menaces (Spam, Viruses, Fraud etc.) If revelations of exposed financial and personal information continue to emerge internationally, French consumer confidence in some broadband services may wane. Indeed if demand for security is not satisfied, it may threaten the growth of demand for broadband in general.

Part 4 - The marketplace for Digital equipment and systems

France's IT market which includes computer hardware, packaged software, and IT services was valued at USD 52.7 billion in 2004 and represented approximately 17 percent of the total western European IT market. Computer hardware, including local-area- and wide-area-networking equipment, was the next largest segment, accounting for approximately 29 percent and valued at USD 15.2 billion.

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in the automation of government key services.

Servers

The five top server manufacturers are IBM (45 percent); HP (23 percent); Groupe Bull (48 percent); Sun (56 percent); Dell (13 percent) and Fujitsu-Siemens (7.2 percent). Estimated at USD 661 million, the server market has grown by 4 percent in 2005. French corporations continue decreasing expenditures related to maintenance and platform administration and supervision while increasing expenditures related to information system's availability, security and quality of service.

Personal Computers

The French PC market has experienced an unprecedented 30 percent growth in volume in 2004 never reached before over six years, making France one of the most dynamic markets in the old continent. Although purchases from SMEs remained dynamic, the market is pulled upwards by sales to large corporations that renew old equipment. The ten largest PC manufacturers are NEC CI, Compaq, Hewlett-Packard, Dell, IBM, Fujitsu-Siemens, Toshiba, Apple, Continental Edison, and Acer. The PC market has grown by 15 percent in 2004. The sale of portable PC's has exploded since 2002, and this trend will continue as mobility in a wireless environment is becoming a priority for individuals and professionals alike. More than one out of two PCs being sold in 2005 is a portable.

The breakdown of the market is HP (26 percent); Toshiba (16 percent); Dell (14 percent), Levono (ex-IBM) (8 percent), NEC (7 percent), Acer (6 percent), Sony (5 percent), and Apple (4 percent). Direct PC sales are anticipated to reach 25 percent in 2005.

Printers

The market for printing products has reached USD 4.3 billion in 2005 and grew by 7 percent over the previous year. This market is pulled upwards by the sale of multi-function printers, whose sales exploded to exceed 3.5 million units in 2005, or a 33 percent growth. The average price of a multi-function inkjet printer has dropped to USD 243, from USD 593 million in 2001. More than 130,000 color laser printers have been sold in 2005, an increase of 53 percent from 2004. This growth is primarily related

to prices that have dropped by 8 percent, with an average price-per-unit of \$1300. Sales of photograph printers have risen by 92 percent with 230,000 units sold, with a corresponding market share for color cartridges that increased by 3.5 percent to reach 47.4 percent. Further, a total of 300,000 scanners should be sold in 2005, a drop of 38 percent. However, the average per-unit sale price has risen to USD 217.

Part 5 - Future prospects in this market

Software and Services

Management consulting in IT systems (+2 percent)

Engineering services (+2 percent)

Facilities management and Third-Party Maintenance of Applications (TMA) (+8 percent)

Packaged software (+5 percent) - Integrated Management Software and PLM solutions

Computers and Peripherals

Portable devices (laptops, palmtops, smartphones, etc.)

Wireless solutions

I-mode related products

Portable storage devices (USB keys, hard-drives, etc.)

Telecommunications

Broadband equipment and services

Security products

E-commerce products

E-gaming devices

Wireless equipment and services

Part 6 - Important USDOC resources in this market

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Germany

Capital:	Berlin
Population:	82 million
Languages:	German
Monetary Unit:	EUR
Exchange Rate:	0.82
GDP per Capita (in US\$):	33,930 (2004)

Local Market Commercial Specialist

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Part 1—Market Overview

The German economy is the world's third largest and, after the expansion of the EU, accounts for nearly one-fifth of European Union GDP. Germany is the United States' largest European trading partner and is the sixth largest market for U.S. exports.

Germany's "social market" economy largely follows free-market principles, but with a considerable degree of government regulation and generous social welfare programs and protections.

Germany is the largest consumer market in the European Union. Over 82 million people in Germany and more than 100 million German-speaking consumers make up the largest language group in the European Union. Additionally, this language group has one of the highest per capita incomes and therefore purchasing power in Europe. The number of consumers and Germany's geographic location at the heart of a 25-member European

Union that added ten members in 2004 make it a keystone around which many U.S. firms seek to build their European expansion strategies.

Real German GDP expanded by 0.9 percent in 2005 and forecasters predict economic growth to reach 1.7 percent in 2006. Sluggish consumer demand, weak investment spending, and the persistent crisis in the construction sector continue to exert a dampening effect on recovery. The German economy continues to suffer from structural problems, including inflexibility and over-regulation in labor markets, taxation, and business establishment, as well as high social insurance costs.

The German government recognizes the need for reform and has begun a series of reforms. While many observers regard these programs as a useful start, most also expect that additional reforms to enhance competitiveness will be required. German firms focusing on exports, especially in the automotive, chemicals and high tech sectors, recently have enjoyed healthy profits and have exported more goods and services than firms from any other country; the retail sector, by contrast, continues to struggle. Major manufacturing firms have increasingly shifted their production overseas to maintain global competitiveness and reduce costs.

Persistent high unemployment is Germany's most sensitive political and economic issue. Despite modest initial progress in reducing unemployment during its first term in office, the Schroeder government had not met its goal of sharply cutting the jobless rate -cutting the unemployment rate remains a challenge for the new Merkel government. Since 2000, weak economic performance and stagnant job creation have combined to push unemployment rates up. In 2005, the overall unemployment rate stood at 9.5 percent. There continues to be a significant disparity between unemployment in the eastern and western states of Germany. The long-term (longer than one year) unemployed comprised 38.8 percent of those jobless in 2004.

Germany presents few formal barriers to U.S. trade or investment. Germany has pressed the new EU Commission to reduce regulatory burdens and promote innovation in order to increase the EU member states' competitiveness. Germany's own regulations and bureaucratic procedures, however, can prove a baffling maze. While not directly discriminatory, government regulation is

often complex and may offer a degree of protection to established local suppliers. Safety or environmental standards, not inherently discriminatory but sometimes zealously applied, can complicate access to the market for U.S. products. American companies interested in exporting to Germany should make sure they know which standards apply to their product and obtain timely testing and certification. German standards are especially relevant to U.S. exporters because, as EU-wide standards are developed, they are often based on existing German ones.

With annual revenues of more than EUR 134 billion and a workforce of some 750,000 employees, the ICT sector is one of the biggest contributors to Germany's economy. Germany's ICT sector is the largest in Europe, followed by the U.K. The European Information Technology Observatory (EITO) and the leading German ICT association (BITKOM) believe that the German ICT market will grow by 2.4 percent in 2005. Demand for software and IT services is up. Even hardware shows signs of recovery, although constantly declining prices will not allow for considerable increases. Telecommunications is believed to have grown by 1 0.6 percent in 2005. In general, IT and network security, knowledge management, web services and new products on the basis of broadband technologies such as WLAN are seen as major drivers behind the recovery.

Part 2—The Marketplace for Business Process Software and Services

The German market for software is the largest in Europe and ranks second in the world, after the United States. Due to lingering economic weakness, which had a negative impact on software spending, the software market decreased slightly by 0.3 percent (in EUR figures). It is anticipated however, that the market will pick up again in 2004 and 2005, with expected growth of about 3-5%. The economic recovery as well as the backlog in IT modernization are seen as the driving factors to prompt companies and institutions to invest again into software solutions. Analysts estimate that approximately 80 percent of software products sold in Germany are imported, mainly from the United States (the majority of the large U.S. software developers have subsidiaries in Germany.) There are no trade barriers obstructing sales of U.S. software. Industry- specific and niche

products will continue to find good sales opportunities in Germany. However, as the European Union continues to expand as a single market, U.S. vendors will also meet growing competition from other European software vendors in the German software market.

Market growth is attributable to the following factors: higher demand for security software, substantial investments in Integrated Enterprise Applications to streamline back- and front-office operations, increasing investments in e-business applications and other enterprise applications such as Customer Relationship Management (CRM) technologies, Supply Chain Management Software, and increased outsourcing activities.

The computer software market is very competitive and is dominated by large, multi-service suppliers. At the same time, it offers potential for smaller companies with highly specialized products. The top 25 suppliers hold approximately 40% of the German market, mainly with sales of standard software. Medium-sized vendors account for more than 60% of total sales. Analysts estimate that approximately 80% of software products in Germany is imported, mainly from the United States (primarily through their subsidiaries in Germany.) U.S. software products are well accepted, since the United States is widely seen as leading the world IT industry in innovation and quality. U.S. products and services consequently enjoy an excellent reputation. U.S. companies, mainly through their local subsidiaries, hold an estimated 60 percent share of the German market. As the European Union continues to expand as a single market, however, U.S. computer software and services companies can expect to find growing competition from other European countries, mainly the United Kingdom, France, Scandinavian countries, the Netherlands and, in the IT security sector, from Swiss firms.

The major factor behind growth in the computer services sector is an increasing trend towards outsourcing. In addition, there is a growing demand for security and e-business project services. Most large U.S. IT services providers have facilities in Germany, and, for official statistical purposes, are counted as local firms. This also affords them national treatment from German and EU authorities. Approximately 60 percent of the overall IT-

services sales are attributed to German subsidiaries of U.S. firms. While competition from local companies exists, U.S. firms are often perceived as having more experience in the IT environment and, therefore, have a head start in the business. However, as the European Union continues to expand as a single market, U.S. computer services companies will also meet growing competition from other European countries, mainly from the United Kingdom, France, and The Netherlands.

Part 3—The Marketplace for Communications

The telecommunications industry is still widely regarded as one of the driving forces behind economic growth in Germany. Whether in the areas of multi-media, mobile communications, or the Internet, telecommunications is the key to unlocking German potential for future economic development. Germany has not only been one of the fastest growing markets for mobile equipment - there are more mobile than fixed-line subscribers - but is also very well prepared for any future technology in the telecommunications sector. Thousands of miles of high quality fiber optical cable make the country ready for the application of the future.

In the services area, regulatory decisions and hopefully increasing competition through the introduction of call-by-call and carrier pre-selection characterize the German communications market. Broadband deployment continues to be the main topic in fixed-line telecommunications; while mobile services is seen as the main driver behind growth, mainly due to the increasing demand for data services. Broadband is also key to developments in the equipment segment, where optimists also hope that UTMS will drive demand for mobile infrastructure equipment.

Deutsche Telekom AG (DTAG) will remain the dominating figure in the telecommunications arena. Recent activities show that DTAG is focusing its activities on W-Lan; online shopping; security; higher bandwidth for heavy users; special offers for online gamers and SME's.

Main drivers of telecommunications growth in Germany are broadband, value-added services, and mobile communications. Technologies and services that address these market segments are considered to be the best prospects for U.S. SMEs. To gain market share, competing operators need new and different equipment and technologies from what DTAG offers. DTAG has longstanding, established relationships with existing suppliers or systems integrators, and a preference to continue to work with them. This fact can make it difficult for new (particularly small) vendors to establish a foothold and sell to the incumbents, according to local market experts.

Germany's Internet commerce sector is the European leader and is among the world's most sophisticated. It is expected to grow to EUR 732 billion by 2007. The use of the Internet by individuals and businesses in Germany is continuing to expand. More than 60 percent, or 42 million Germans older than 14 years were online in 2004. This percentage is expected to grow to 72 percent by the end of 2007.

Business-to-business (B2B) commerce accounted for EUR 123 billion in 2003 and projected to grow to EUR 651 billion by 2007. Business-to-Consumer (B2C) commerce accounted for EUR 15 billion in 2003 and forecasts believe it will grow to 82 billion in 2007. About 5 percent of German retail transactions were online sales in 2004. This number is expected to grow to 11 percent in 2007.

B2C

36 percent of German adults realized at least one shopping transaction via the Internet in 2004. Favorite B2C products are travel, apparel, electronic devices, entertainment, books, and computer equipment. German mail order giant Otto Group is the world's number two in B2C online trade, second only to Amazon. Retailers without "physical" retail stores or those lacking brand recognition sometimes encounter difficulties when trying to win the trust of German customers. Besides trust, price and product diversity are the most important competitive factors.

B2B

Almost all German small and medium sized businesses have Internet access. Online transactions such as e-procurement are growing and Customer and Partner Relationship Management are becoming increasingly important. Most e-commerce strategies focus on quick return on investment. Revenues of industry or company specific marketplaces like SupplyOn in the automotive industry are growing after years of consolidation. The major channel for B2B transactions remains the traditional Electronic Data Interchange. Major users of B2B solutions are the automotive, retail, energy, and pharmaceutical/ chemical production industries.

Financial Services

Germans are heavy users of banking and financial sites and increasingly trust online banking services. Thirty-three percent of German adults did online banking in 2004.

E-Government

Germany offers a good number of e-government services but there is considerable scope for improvement. The German federal government plans to put all Internet-capable services of 350 federal agencies online by 2005 (www.bundonline2005.de). The central German government online procurement website e-Vergabe launched in 2002 is available at www.e-vergabe.bund.de

Part 4—The Marketplace for Digital Equipment & Systems

U.S. computer products are viewed as innovative products of superior quality and leading edge technology. Despite the current economic slowdown, IDC predicts that Germany's hardware market will reach EUR 34.1 billion in 2007. Germany will account for approximately one quarter of the EU's IT market in 2006. The United States is expected to retain its import share of approximately 25 percent at least until 2005. Exports exceed production due to considerable amounts of imported equipment being directly resold abroad or included as value-added equipment in locally manufactured products that are exported.

In general, analysts believe that, because Europe still lags behind the United States in Internet penetration, there is room for continuous and stable growth for IT in general and server systems in particular.

For the overall computer hardware and peripherals segment, however, forecasts are disappointing. The expected growth of less than 1.8 percent for 2005 is mainly based on individual segments which enjoy considerable growth, such as notebooks, handheld PCs or multifunctional devices, products which saw growth rates of between 10 and 18 percent compared to 2004.

Experts see the increased use of the Internet at the workplace and growth of eBusiness as one of the drivers behind potential future growth. These positive trends have resulted in a need to process larger data volumes, coupled with a demand for higher bandwidth and applications requiring increased output performance. After three years of economic stagnation and a subsequent reluctance to invest, German firms face a pent-up demand for investments in IT communications infrastructure, including a demand for more powerful server systems (RISC/UNIX).

Part 5—Future Prospects in this Market

- IT-security, Integrated Enterprise Applications to streamline back- and front-office operations; increasing investments in e-business applications and other enterprise applications such as Customer Relationship Management (CRM) technologies, Supply Chain Management Software; as well as Document Management Software (even though the ERP/DMS market is dominated by local vendors.) As companies focus on efficient business processes, there is a higher willingness to invest in cost reducing equipment such as DMS.
- The following industries are expected to undertake major investments for software products (due to the need to standardize and optimize business processes as well as to implement IT-security features): the public sector, the banking and

insurance sector and the medical sector, although these areas are difficult to penetrate by new to market companies.

- Market growth is also anticipated for security administration, authorization and authentication (3A) software due to the broad consumption of these technologies by identity management and web services security.
- Security appliances as a means of delivering software because of the wide coverage of the products. In this way, a single appliance can solve multiple enterprise security needs.
- Security equipment for storage networks and VPN solutions – industry researchers anticipate this segment to grow by more than 30 % within the next two years – primarily within the smaller to medium-sized firms) will also be in demand.
- Outsourcing services, IT-security services, E-commerce projects, BPO (Business Process Outsourcing) services
- The following industries are anticipated to undertake major investments for services (due to the need to standardize and optimize business processes as well as to implement IT-security features): Insurance, web services, banking.
- Germany still lags behind the rest of the EU in broadband deployment. Once political and regulatory hurdles have overcome, broadband technologies (DSL and TV cable) will offer considerable opportunities for suppliers of technology and services.
- The mobile telephony segment is still widely regarded as one of the main growth drivers in the German ICT market – only Internet-related technologies have experienced higher growth rates.

- WLAN. The German electronic industry association BITKOM expects that the number of broadband connections will steadily rise at a two-digit rate.
- Broadband access via satellite: There are 6.7 million households beyond reach of DSL infrastructure at the moment. Corresponding to EUTELSAT's assessment, the majority of these homes will not be connected to the DSL network in the next five years.
- Interactive TV in Germany: Germany has not yet made the transfer to the age of interactive TV: Only 1 out of every 100 households has an iDTV connection. Starting from such a low level, the industry association estimates that there is going to be three-digit growth in the coming years, so that penetration will reach 16 connections per 100 households in 2007.
- Leading edge ICT products are sought after by German distributors. Servers, laptops, printers, W-LAN equipment, memory, and networking products.

Part 6—Important USDOC Resources in this Market

(Including USDOC programs and events)

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Greece

Capital: Athens Population: 10.8 million Languages: Greek Monetary Unit: Euro (€) Exchange Rate: €1 / \$1.22785. GDP per Capita (in US\$): 21.300\$

Local Market Commercial Specialist

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Part 1—Market Overview

Greece by geographic location is the Balkan crossroad connecting emerging economies of the Balkan countries with the highly promising Greek IT market. Moreover, Greece is one of the “market-bridges” connecting European Union and Asian markets.

Although, the Greek Information Technology market is of a small size, compared to the large European markets, for the last decade it has been characterized by the highest growth rate, compared to the European average (roughly 12-15%) and has significant developmental margins. There are several E.U. funded projects in action that will allow the further expansion of the Greek IT market and an increase in the demand for high tech products.

The new “Digital Strategy 2006-2013” project places ICT high in Greece’s agenda. The main objective of the “Digital Strategy 2006-2013” project is to provide digital services to businesses re-organize the public sector, develop digital services for citizens through the creation of gateways and the expansion of broad banding. The “Digital Strategy 2006-2013” project is funded by the 3rd Community Support Framework and coordinated by the Information Technology Committee.

The new policies of the E.U. also include the project: “i2010” that focuses on the internal market the internal market for information services and investments in ICT innovation and competitiveness.

In the time interval until 2006, investments of \$3.4 billion are expected to be made in the IT sector and in Communications services, related to the Operational Program “Information Society” of the 3rd Community Support Framework. It is estimated that the growth rate of the Information Technology market in Greece will increase by 4% in 2006, the sales of the IT sector are estimated at \$6.5 billion and the profits are estimated at \$384.7 million.

In the telecommunications sector Greece maintains its high records and according to the European Information Technology Observatory, the growth rate of this particular market was 3.5% in 2005 and is expected to have an additional increase of 3.5% in 2006 estimated at \$7.5 billion. The sales in the field of Telecommunication are expected to reach \$ 24.2 billion, increasing by 18%, and the total profits of that sector are estimated at \$1.9 billion, increasing by 23%. It is expected that all these programs will create great demand for IT equipment and will lead to a great development of the continuously growing IT sector.

Part 2—The Marketplace for Business Process Technology

The Greek software market is large and growing and the competition is intense. Almost 55% of the total software distributed in Greece is produced locally. The major companies are: Delta-Singular, DIS-Computer Logic, UNISOFT, INTRASOFT, BYTE Computer SA, MLS Pliroforiki, 01 Pliroforiki SA, InfoQuest SA, Iason Pliroforiki SA, SystemSoft SA (Singular’s Business Partner), EnterSoft SA.

By 1996, first generation Enterprise Resource Planning (ERP) systems appeared in the market, evolving the IT business environment to a “client server” and “windows-like” structure. Today, the implementation of ERP systems is considered basic for the competitive performance of any firm. The Greek market demand is for ERP systems that support commerce-logistic transactions, also sales procedures, as well as Customer Resource Management (CRM) service procedures and projects implementation procedures.

Moreover, the market of computer hardware is expected to reach the \$856.6 million with a percentage increase of 4.6%. The highest increase is observed at the portable computers (23.4%) and the high-end servers (22.5%). The services of information technologies are expected to reach the value of \$929.3 million with an increase of 6.3% in comparison with 2005, when they were at \$860.8 millions. Portable computers (23.4%) and the high-end servers (22.5%) are the best selling IT products and their increased sales are expected to continue.

Overall, the Greek market is a competitive and prosperous market for major firms that develop software and hardware such as Microsoft Hellas S.A., Oracle Hellas S.A., IBM Hellas S.A. and Hewlett Packard Hellas that are already operating in the Greek market.

Part 3—The Marketplace for Communications Technology

Fixed-line telephony:

The liberalization of telecommunications internationally resulted in the improvement of services and the decrease of prices as more telecommunication companies entered the fixed-line telephony market and competition was created. The government agency that supervises and controls the telecommunication field is the National Committee of Telecommunications and Posts (EETT). Today most major telecommunication companies that operate in Greece offer the fixed-line telephony service: Altec Telecoms, Cosmoline, Infoquest, Forthnet, Lannet, Tellas, Telepassport, Vivodi and Q-Telecom. The competition between these companies has lead to a lowering of the prices and an

improvement of the services offered, for the benefit of the clients. However, the Hellenic Telecommunications Organization (OTE) is still the main incumbent fixed-line operator with almost 6,000,000 clients in Greece.

Mobile telephony:

In the telecommunications sector Greece maintains very high records. The size of the actual mobile telephony penetration exceeds 75% of the Greek population. It is calculated that in the next decade 2,000,000 new subscribers will be added in the Greek market, in all the networks of mobile telephony thus increasing the percentage of penetration to 90% of the Greek population.

Key Players – Greek Telecommunications Sector		
Company Name	Ownership	Market
Hellenic Telecommunications Organization (OTE)	Hellenic Republic: 36%, Greek Institutional Shareholders: 14% International Institutional Shareholders: 36% ,Hellenic Exchangeable Finance S.C.A.: 3% Rest Shareholders: 11%	Fixed-line (local, domestic long-distance, international), data, internet
FORTHnet	Institution of Technology and Research ([I].[T].[E]) with 20,31%, Cycladic Capital Management 11.9%, NOVATOR EQUITES LTD with 34.33%, while the remainder percentage belongs in the investment public, as well as in workers and collaborators of Company.	Fixed-line (local, domestic long-distance, international), data, internet

Q-Telecom	TIM (100%) *	Fixed-line (local, domestic long-distance, international), mobile, data, internet
Tellas	PPC (50%), WIND (50%)	Fixed-line (local, domestic long-distance, international), mobile, data, internet
CosmOTE	OTE (58.9%), Telenor (18%), WR Enterprises (7.08%)	Mobile
Vodafone-Panafon	Vodafone (64.0%)	Mobile
STET Hellas	Telecom Italia Mobile (81.4%)	Mobile

Internet:

Since 2002, the Internet users-base in Greece has grown approximately 40% per year.

The overall Internet penetration consists of 22% of the population and almost 100% of Greek businesses have Internet Access. There is expectation that the provision of ADSL connections with greater speed will further the number of Internet users

Part 4—The Marketplace for Digital Equipment & Systems

There is a strong personal computer assembly market in Greece accounting for about 60% of the Greek hardware market. The four local firms dominating the market are: Quest Group, Pouliades & Associates, INTRACOM and the Altec Group. The majority of the hardware components in Greece are imported from the U.S. and Asia. There is no local production of computer networking equipment in Greece. There is a limited presence of French, German and Israeli and, to a smaller degree Japanese and Far East manufacturers. The Information Technology products that originate from the United States account for 55-60% of Greece's import market. The primary equipment imported from the US includes personal computers, servers, printers, modems, multiplexing equipment and related software and is either shipped directly from the U.S. or U.S. subsidiaries in Europe. The state controlled companies and organizations are some of the

largest Information Technology consumers in the Greek market. During the period 2003-2008, it is expected that approximately \$2.4 billion will be spent on IT projects. The EU will provide almost 70% of the funding for these Greek Government IT projects through the “Information Society” program of the 3rd & 4th Community Support Framework (CSF).

Part 5—Future Prospects in the Greek Market

- ❖ The General Management of Technology considers the transformation of the network into a “new generation” NGN (Next Generation Networking) as the leading objective for the three-year period 2006-2008. The General Management of Corporate and Domestic Clients estimates that by the end of 2006 OTE will have ensured 300,000 ADSL subscribers and 800,000 subscribers in 2008 provided that there will be an upgrade of the speed in broad-band to 4Mbps in 2007 in order to provide triple play services.
- ❖ The “Voice over IP” (VoIP) service, the “Voice over Internet Protocol”, meaning the transportation of voice services into a data network is becoming more and more popular in all of Europe and Greece as well and all major Greek telecommunications companies offer that service.
- ❖ Another cellular license is to be re-auctioned within 2006
- ❖ The Greek Government signed on February 2nd 2006 in Lisbon, an agreement with Microsoft Corporation, which includes the purchase of software licenses. In addition, the company will establish the creation of an innovation center (Microsoft Innovation Center) in Greece, where executives of Greek software companies will be trained in the development of business solutions that will be based on Microsoft systems. Also, until 2008 Microsoft is planning to create ten training centers in the areas of Greece that have high unemployment rates, to offer training on Microsoft applications.

Hungary

Capital: Budapest Population: 10 million Languages: Hungarian Monetary Unit: Hungarian Forint (HUF) Exchange Rate: 1US\$=HUF 207 (Jan. 2006) (publisher to insert at press time) GDP per Capita (in US\$): 16,238 (EUR 13.725 at purchasing power parity in 2004)

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Part 1—Market Overview

The Hungarian IT market totaling USD 2,237 million (EUR 1,912 million) in 2004 with a projected yearly growth rate of 7.4 percent in 2005 offers opportunities for U.S. companies. The government plans to increase relatively low personal computer use and internet availability through various programs. The number of Internet users reached 27 percent of the population in the first half of 2005, according to a recent Hungarian research study. The Internet penetration of households has grown to 16 percent, while the proportion of regular Internet users increased to 19 percent. The government has established a Public Web Program that provides 7,300 broadband access points to public institutions and 5,000 schools, as well as the eHungary program, which provides public internet access points. The Ministry of ICT provides HUF 12 billion (USD 57 million) to

increase broadband coverage, which currently stands at 92 percent in Hungarian towns with populations above 10,000.

The Unified Communication Act (EHT) liberalized the telecommunications market in early 2002. To conform to EU legislation, Hungary passed the Electronic Telecommunications Act, which took effect on January 1, 2004. The telecommunications market is estimated to amount to USD 4,629 million in 2005 and is expected to grow by 1.3 percent in 2006 according to European Information Technology Observatory (EITO). After dynamic development in the fixed line market between 1998-2000, the penetration of fixed lines has slowly declined from 37 percent to 34.4 percent, along with usage time and revenues. Telecommunications companies are now focusing on data communications as a driving force. Mobile phone penetration reached 90 percent with more than 9 million subscribers. The telecommunications market is expected to slow somewhat in coming years, but there should be new possibilities in the wireless data communications segment. Ultimately, mobile phones are expected to be overtaken by the Internet as the most dynamic sector. Increased Internet penetration will, in turn, trigger the development of the cable TV market.

Part 2—The Marketplace for Business Process Technology

According to International Data Corporation (IDC) Hungary, 54 percent of IT spending stems from the SMEs sector (companies with 10-499 employees). However, IT spending by the 125,000 small companies (employing 10-50 people) lags behind that of mid-size companies. SMEs will increase spending on Enterprise Application Software (EAS) (USD 44.77 million in 2003) in the coming years. The market leader is SAP with a market share of about 50 percent. Other major market players include: Volan Elektronika (HU), Oracle, Megatrend (HU), Scala and Microsoft. Based on license revenues, the accounting module ranks first, followed by the procurement/sales order management and customer relations management. In addition to the manufacturing sector, there will be a growing demand on behalf of utilities and the public sector, according to IDC forecasts.

So-called “Business Intelligence” solutions, including query and reporting, Online Analytical Processing (OLAP), data warehousing and data mining, are growing quickly. This segment posted growth of 27 percent in 2004, and steady gains should be reported for 2005 and 2006, as demand for these solutions continue in the financial, telecommunications and public sectors, as well as from the manufacturing industry and utilities. The major suppliers included Oracle, SAS Institute, Cognos, SAP and Business Objects, covering 80 percent of the Hungarian market.

In addition, the market for security software is rapidly growing as IT security awareness rises in Hungary. Some estimate that the market for anti-virus and anti-spam software reached USD 13.2 million in 2005, an increase of 16 percent over 2004.

In 2005, 44 percent of software used in Hungary was illegal compared to the average Western European piracy rate of 35 percent, according to a study published by the Business Software Alliance (BSA) and IDC Hungary. The software piracy rate in the SME sector is about 60 percent. BSA has launched a new anti-piracy campaign, randomly visiting about 600 SMEs throughout Hungary. The use of pirated software caused a fallout of USD 126 million for the Hungarian economy in 2004, up 24 percent from 2003, according to BSA.

Part 3—The Marketplace for Communications Technology

According to the Communications Authority of Hungary, there were 3.420 million fixed lines at the end of September 2005 representing a penetration rate of 33.93 percent. ISDN lines amounted to 16.53 percent. About 70 percent of the Hungarian households have a fixed-line phone. Carrier service earnings were estimated to reach EUR 3.278 (USD 3,802 million) in 2005, and only a moderate increase of 0.9 percent can be expected in 2006, according to EITO.

The former state monopoly, Magyar Telekom (formerly MATAV), is the dominant telecommunications service provider in Hungary. It had a monopoly on long distance and international public switched services until the end of 2001. The company was

privatized in the mid 1990s and is currently majority-owned by Deutsche Telekom (59.21 percent) with the remaining shares trading on the Budapest and the New York Stock Exchanges. It is also the major, but not exclusive, provider of local telecommunications services, operating 36 of the 54 local network areas in Hungary. It operates directly in 36 regions and provides joint service in three others. In addition to fixed line services, Magyar Telekom is engaged in mobile telephony. Its subsidiary, T-Mobile, is the market leader with 45.22 percent market share (end of 2005). Other subsidiaries include T-Online (data communications and internet service, with 251,000 subscribers end of 2004); MATAVKabel (cable TV, with 250,000 subscribers); and satellite communications. At the end of 2004, MATAV operated 2.82 million lines including 2.01 million residential lines, 256,321 business lines, 27,059 payphones and 525,346 ISDN channels. MATAV has invested USD 3.5 billion in network development and upgrades since 1994. MATAV has about 77 percent market share in fixed line services. Within its area of local coverage, the phone penetration rate is about 37.53 percent. The remainder of the fixed line market is controlled by local telephone operators (LTOs): Invitel, formerly Vivendi Telecom Hungary, operates 9 concessions with 14 % of the overall market; Hungarotel, 5 concessions with about 5 percent market share; Emitel, a 100 percent MATAV subsidiary in 3 concession areas, with 2 percent market share, and UPC-controlled Monortel, one concession and 2 percent market share. Alternative service providers, Pantel and GTSDatanet, are competitors in the corporate market.

The mobile market is close to saturation with 9.32 million subscribers (92.4 percent penetration) at the end of 2005. Of the three mobile service providers, T-Mobile, formerly Westel, leads the market with a market share of 45.22 percent. Next is Pannon GSM, owned by Telenor, with 33.75 percent, followed by Vodafone which has recently seen steady growth with a market share of 21.21 percent. All three mobile service providers have won 25-year concessions for services on 900 and 1800 MHz.

Internet penetration in Hungary is estimated to reach 18-20 percent according to market players. Hungary's internet market has grown rapidly in the last few months, boosted by reduced fees offered by Internet Service Providers (ISPs). The internet service market is

estimated at HUF 60 billion (USD 280million). The number of broadband internet users is expected to exceed one million within two years. More than 60 percent of the 832,000 subscribers chose broadband. There are 200 ISPs, however 90 percent of the subscriptions are held by 17 companies. Business-to-Customers (B2C) e-commerce will reach USD 100 million in 2005, representing 0.36 percent of retail business. B2C e-commerce conducted via online websites has achieved a yearly 40 percent increase.

Part 4—The Marketplace for Digital Equipment & Systems

The Hungarian IT market shows a profile typical of the more advanced markets in Central-Eastern Europe, according to the European Information Technology Observatory (EITO). EITO estimates that Hungary's total IT market reached sales of roughly USD 2,418 million (EUR 2,067 million) in 2005 -- up 8.1 percent from the previous year. And growth should continue at about the same pace (7.4 percent) in 2006. EITO estimates the market segments in 2005 as follows: computer hardware (USD 830 million/EUR 703 million), IT services (USD 762 million/EUR 646 million), and software products (USD 533 million/EUR 452 million). While sales of IT services decreased in 2004, EITO forecasts growth reaching 9.7 percent in 2006.

Hungary's entry into the European Union is expected to fuel economic growth and the initiation of modernization programs. This is expected to result in the upgrading of hardware systems not only within the government but in large companies, and especially, in small to medium companies. In the first half of 2005, 6904 servers were sold in the country according to International Data Corporation, Hungary. Meanwhile, the growth in the sales of personal computers appears to have slowed for the first time in three years (380,000 units were sold in 2004, but only 155,000 in the first half of 2005). But branded PCs are gaining popularity, making up 30 percent of all purchases, versus 22 percent previously.

The digital camera market is still growing in Hungary as opposed to more developed markets where sales are stagnating. In 2005, 270,000 digital cameras were sold representing a 35 percent growth compared to 2004 figures.

Part 5—Future Prospects in this Market

In 2006, the Hungarian government plans to spend at least USD 580 million (HUF 122 billion) to develop an „information society”. In addition to Hungarian government funds, EU grant money will be available for companies to install integrated Enterprise Resource Planning (ERP) systems and to develop web pages, content, portals, e-commerce sites. In the software market, there will be an increased demand on ERP systems for SMEs, document/content management, business intelligence, data warehousing, middleware, storage management and IT security software.

The Ministry of ICT has set-aside HUF 12 billion (USD 57 million) to increase broadband coverage in the least covered areas. In addition, EU grant money of USD 1.4 million – through „Economic Competitiveness Operational Program” -- will be available in 2006 to help build broadband internet infrastructure in lesser developed areas.

Best prospects: Analysts predict growth in areas such as notebooks, Windows-based servers, color laser printers, disk storage devices and “converged devices,” such as a cell phone combined with a PDA.

Part 6—Important USDOC Resources in this Market

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Ireland

Capital:	Dublin
Population:	4.0 million
Languages:	England and Gaelic
Monetary Unit:	Euro
Exchange Rate:	0.82
GDP per Capita (in US\$):	\$34,000

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Part 1—Market Overview

Ireland has a strong knowledge-based, export-focused ICT industry with over 1,300 companies employing 90,000 people and generating sales of over \$67 billion. The sector has significant indigenous and foreign-owned segments across manufacturing, software, and services. It is supported by a strong and consistent policy environment consisting of low corporate tax rates and excellent skills base, allied to an emerging business culture that values entrepreneurship and innovation.

Ireland's \$8 billion ICT market is very mature with strong domestic and international competition. It has significant telephony penetration and a solid digital games culture, however, it is also characterized by low PC penetration rates, poor broadband access and low levels of ICT adoption across several market segments. The following is a summary breakdown of the Irish ICT market by sector.

Sector	Market Size	Growth
Business Process Technology	\$1,200 million	5-8%
Communications Technology	\$5,300 million	5-10%
Digital Equipment & Systems	\$1,640 million	5-6%

This contrasting paradigm between sector and market in Ireland actually benefits U.S. business as Ireland represents a location that offers excellent opportunities for U.S. ICT companies to achieve export success, both within the local Irish market and in the wider European context. Irish companies are increasingly interested in strategic trade opportunities with U.S. firms and they make ideal partners for U.S. SMEs interested in the European marketplace.

Part 2—The Marketplace for Business Process Technology

Sector	Market Size	Growth
Computer Services	\$620 million	5-8%
Computer Software	\$580 million	5-6%

The market for business process technology has been one of Ireland's fastest growing business sectors with annual growth rates of up to 10 percent in recent years. Within the computer software segment, Microsoft is the dominant player with Oracle, IBM and SAP also prominent, while Linux is starting to gain market share. Demand for browser-based enterprise software has increased, driven by the move toward mobile computing and e-working. Increasing emphasis is being placed on security and storage technology solutions. In recent years, the ERP and CRM sectors have been sluggish and the days of forward-buying software by the commercial sector are over.

Within the services sector, there is increased demand for managed services, systems integration and network maintenance, whereas enterprise systems and business consulting have experienced sluggish demand. Key market players include HP, Accenture, Fujitsu,

IBM, EDS, BearingPoint and Cap Gemini. The Government, telecommunications, health and education sectors are expected to underpin growth in 2005.

ICT adoption and deployment in the health and education sectors are well below the OECD and EU norms. Indeed, there is a perception in parts of the public sector that technology is an optional overhead, confined to computers and software rather than processes that can enable significant change, increasing efficiencies and ultimately saving money. Annual investment in ICT (\$80 million) represents just one percent of the entire Department of Health budget, while the education sector has seen little ICT investment since completion of its three-year \$100 million program in 2003. Revised ICT strategies for both the healthcare and education sectors were compiled in 2003, but their publication is still awaited.

The new ICT strategy for the healthcare sector is understood to include plans for a Hospital Information System (HIS) that could cost as much as \$650m over five years. The UK-based software firm, iSoft has emerged as the preferred supplier to implement the enterprise software solution that would tie together all aspects of running hospitals across Ireland in terms of patient records, procurement, scheduling and financial management. Companies vying for parts of this HIS contract include IBM, Accenture, Fujitsu/Siemens and HP.

In the education sector, the new ICT strategy is expected to earmark \$150-200 million for the provision of equipment - hardware, software and associated technology - into schools over a five-year period. In March 2004, the Irish Government announced a \$25 million public private partnership program to bring broadband to every school in the country by the end of 2005. The current pupil-to-computer ratio is 11:1 in secondary (high) schools and 9:1 at primary (K-12) level.

Part 3—The Marketplace for Communications Technology

Sector	Market Size	Growth
Telecommunications Services	\$4,500 million	3-4%
Telecommunications Equipment	\$ 800 million	6-10%

The telecommunications sector in Ireland is showing signs of growth, as revenues have increased 3 percent, with the mobile sector underpinning this growth. There are some 5.6 million telecom access paths in Ireland. Mobile telephony dominates with 3.57 million subscribers while fixed lines are stagnant at 1.6 million. The Irish broadband market is exhibiting significant growth, albeit from a very low base, with strong take-up of DSL lines in 2004. There are over 83,000 installed DSL lines, 6,800 cable modems, and 6,100 Fixed Wireless Access subscribers. While over 525,000 homes are connected to cable TV, the adoption of cable as a broadband access path has been low, largely due to the poor quality of the cable network.

Ireland's telecommunications sector was fully liberalized in December 1998. There is strong competition in the \$2.4 million fixed line segment with several 'Other Authorized Operators' competing to take market share from Eircom, the incumbent fixed operator. As Ireland currently ranks second-to-last in the EU for broadband penetration, the Irish Government has re-entered the telecommunications market, in partnership with local authorities, to construct regional broadband infrastructure (carrier-neutral, open access Metropolitan Area Networks) in over 80 cities, towns and regional locations in Ireland. This regional broadband network is managed by eNet, a private company that holds a 15-year concession to act as the Managed Services Entity to the network.

Like most EU countries Ireland's wireless communications sector is very mature with market penetration at 88 percent and total annual revenues of about \$2.1 billion. The two principal operators, Vodafone and O₂, account for over 3.3 million subscribers while the third operator, the U.S.-owned firm Meteor, has some 250,000 subscribers. GSM (2G)

and GPRS (2.5G) technology dominates though UMTS (3G) networks from the three authorized 3G operators – Vodafone, O₂ and 3Ireland (Hutchison Whampoa) - will be fully operational by mid-2005. Meteor declined to bid for a 3G license in 2001. It is widely speculated that Eircom will re-enter the wireless communications market in 2005 while the January 2005 takeover of Meteor's U.S. parent, Western Wireless, by AllTel may result in an ownership change for Meteor.

Telecommunications operators in Ireland continually invest in their networks and generally source leading-edge telecommunications equipment and software for use on their networks and administrative systems. VoIP is expected to be a significant growth opportunity in 2005 as the National Regulatory Authority – ComReg- has granted a new number range for service providers intending to offer VoIP services in Ireland. Eircom is reported to be preparing to launch its own VoIP service during 2005.

Part 4—The Marketplace for Digital Equipment & Systems

Sector	Market Size	Growth
Computers & Peripherals	\$1,040 million	5-6%
Consumer Electronics	\$ 600 million	7-10%

The computers and peripherals segment is very mature with all major international brands competing for market share. U.S. manufacturers such as Apple, Cisco, Dell, EMC, HP, StorageTek, Sun, 3Com, and Xerox have strong positions in the market with Dell and HP being the market leaders. Annual PC sales are about 400,000 units. In the current strong Irish economy, there is a very limited demand for second-hand PCs. Home PC ownership is forecast to grow with increased availability of broadband infrastructure. At the same time, PC ownership (46%) is not as dynamic as the mobile telephony sector (88%), or even the games console sector. Over one million people use a PC at home or in the workplace in Ireland.

There has been strong growth in notebooks and PDAs reflecting a trend toward mobility products. Server demand has also been strong and flat panel monitors have finally overtaken CRT screens. Price erosion has been a key trend within the hardware segment. Vendors have incorporated ATA storage technology in the latest desktop models. Serial ATA ports and disk drives are in demand as features that facilitate integration with servers and network storage areas. In the printer segment, color models are driving market demand while multifunction devices are increasing in popularity.

Industry observers are cautiously optimistic for the market forecasting increased demand for hardware upgrade projects in the business sector as a return to three-year life cycle practices is anticipated. Increased demand for security and wireless technologies is also expected, especially in light of a growth in notebook sales, PDAs and other wireless devices.

The consumer electronics segment has experienced strong growth in recent years. The strong economic performance allied to increased disposable income and rising home ownership has underpinned this growth. Over 1.3 million (95%) households have a television of which 138,000 have upgraded to digital technology, while over 730,000 households (52%) have a DVD player and some 400,000 households (30%) have games console. At the other end of the spectrum, only 7,800 cars in Ireland have traffic navigation systems. The personal electronics sector has also experienced excellent growth with strong demand for personal devices such as iPods and other musical devices.

Part 5—Future Prospects in this Market

Market opportunities exist for U.S. companies with innovative leading-edge information and communications technology products. Most promising prospects include data networking equipment, wireless networking equipment, laptops and notebooks, PDAs, storage technology, multi-function printers, VoIP technology, and leading-edge software products across all market segments.

Sector opportunities exist for U.S. companies who look upon Ireland as a proven ‘gateway to Europe’. Over 85% of Ireland’s \$67 billion ICT output is exported to Europe and points beyond. Irish-based firms have developed sophisticated supply-chain management systems using an array of local importers, contract manufacturers, joint-venture partners, agents and distributors to produce and move product in-and-out of Ireland. These companies are increasingly interested in strategic trade opportunities with U.S. firms.

With a common language and American business affinity, and a workforce highly experienced with international trade, Irish companies make ideal partners for U.S. SMEs interested in the European marketplace. For example, U.S. software companies seeking to penetrate the lucrative European software market should consider entering into joint venture/licensing agreements with Irish firms who have the experience of exporting to EU markets. The U.S. Commercial Service in Ireland is available to assist interested U.S. companies in this regard.

Part 6—Important USDOC Resources in this Market

Irish agents and distributors attend most of the major international high technology trade fairs in Europe and the U.S. seeking to identify and source the latest innovative products. The U.S. Commercial Service in Ireland promotes U.S. exhibitors at a wide range of ICT events in the U.S. and Europe to the Irish ICT community and offers a customized contact service whereby Irish company interest is relayed direct to relevant U.S. ICT firms.

Italy

Capital:	Rome
Population:	57.8 million
Languages:	Italian. German is the official second language in the Trentino-Alto Adige region (Tyrol); French is the official second language in the Valle d'Aosta region.
Monetary Unit:	Euro
Exchange Rate:	0.82
GDP per Capita (in US\$):	26,264

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Part 1 - Market Overview

Italy is the world's sixth largest industrialized economy and Europe's fourth largest market for the Information and Communications Technology (ICT) industry. The Italian ICT market, which represents a 9.1percent share of the total European market, still suffers from long-existing structural problems and is undersized and lagging behind in comparison with Germany, the UK and France. Nonetheless, the technology gap is narrowing and ICT penetration is improving.

In the past three years, the Italian ICT sector has been severely affected by the adverse economic situation and by downpricing on products and services in both the IT and the

Telecommunications sectors. According to the Annual Report of ASSINFORM - the major Italian Association of Information and Communications Technology companies - the Italian ICT sector in 2003 was valued at slightly over US\$ 68.1 billion, basically equaling the level of the previous year. The IT segment, which accounted for US\$ 21.9 billion, decreased by 3.2percent compared with 2002; this was balanced by an increase of 1.8percent in the telecommunications segment, which accounted for approximately US\$ 46.2 billion. Some signs of recovery are appearing and in the first semester of 2004 the ICT sector increased 1.8percent over the same period in 2003.

The Italian Government is committed to modernizing the country through the development of policies for accelerating widespread acceptance and use of new information and communication technologies, both in the public and private sectors. A deep reform of the Italian public administration, based on cost-effectiveness, decentralization, transparency and simplification, is taking place. The need to reach higher levels of efficiency and to offer higher quality public services is playing a key role in the growth of the e-business / e-commerce sector. In particular, significant developments are occurring in the fields of e-procurement, health care management and fiscal services. The Italian government is also fostering a “new economy” business culture by offering SMEs grants for the adoption of e-commerce solutions and for turning to broadband access. The leading Italian government agency responsible for implementing strategies is the Ministry for Innovation and Technologies
<http://www.innovazione.gov.it/eng/index.shtml>

The size and importance of the Italian economy are often not fully appreciated by American exporters, but the potential for expanded American ICT exports to Italy is significant.

Part 2 - The Marketplace for Business Process

The Italian software and services market is heavily fragmented among 70,000 firms, which include manufacturers, distributors and importers. The top five largest companies

hold approximately 43 percent of the business. Italy depends heavily on foreign production of software, which accounts for approximately 75 percent of the total software market, and the United States is the leading foreign software supplier.

Large to medium-sized companies are Italy's primary software and computer services spenders. In the past few years they have continued rationalizing and optimizing their existing infrastructures to improve productivity and obtain benefits in terms of flexibility and governance.

The economic crisis has deepened the digital divide between large/medium and small Italian companies. Small companies, which make up over 90 percent of all Italian businesses, in the last two years have dramatically cut back on their IT investments in order to achieve immediate cost containment and efficiency/productivity gains by not renewing the installed IT hardware base, not introducing new technologies, and postponing or canceling new strategic projects. This is one of the key reasons for the slower growth of the Italian IT market.

Nonetheless, the Italian computer software market, valued at over \$4.5 billion in 2003, is still one of the largest in Europe. System software accounts for approximately 40 percent of the total market, with an increasing diffusion of Open Source Systems and growing demand for Network & System Management solutions, IT management and monitoring solutions, and Application Servers as a solution for complex application integration issues. Integrated ICT security solutions are also being perceived as a core business requirement, and ICT security spending is turning increasingly important for Italian enterprises.

Application software accounts for approximately 60 percent of the total software market, with packaged software representing 18 percent of application software. Italian firms are increasingly investing in enterprise resource planning (ERP) software, supply chain management (SCM) software, and customer relationship management (CRM) software.

E-commerce applications are one of the fastest growing segments, with procurement applications in the lead.

The computer services sector, which is valued at approximately \$10.5 billion, is experiencing difficulty, mainly due to the reduction in the number of new projects and to competitive downpricing by vendors in order to retain their customer base. Nonetheless, outsourcing/facility management services and "selective" outsourcing services (such as applications management, desktop and network management) are registering a good performance, together with Internet-related services to support intranet/extranet and e-business solutions. Other developing rapidly services are transaction and payment management, e-procurement, maintenance-repair-operating (MRO) solutions, home banking, and online financial services.

Companies in vertical markets, particularly in banking, professional services, manufacturing, media, and health care, are expected to continue to invest in software and services. Public Administration is a large investor in information technology and will continue to represent a key end-user as government attempts to advance Italy's information society.

Part 3 - The Marketplace for Communications Technology

The Italian market for telecommunications equipment and services is the third largest in the European Union. During 2003, the Italian telecommunications market underwent a major reorganization, experiencing different growth rates for different market segments. ASSINFORM estimated total market value at \$46.2 billion. Telecom systems and terminals accounted for \$5.3 billion, infrastructure for \$4.8 billion, mobile network services for \$17.9 billion, fixed network telephone services for \$11.6 billion, Internet access for \$1.8 billion, value added services for \$3.1 billion, and data communication services for \$1.7 billion. In the first quarter of 2004, the telecom sector registered a 3 percent increase, mainly due to mobile network services.

Italy remains one of the largest mobile communications markets in Western Europe and in 2003, for the first time, the mobile segment overtook the fixed-line segment. In the first quarter of 2004, there were 58.9 million cellular telephone active subscriptions serving over 42 million clients, equaling a penetration rate of 73 percent. The market for mobile content and value added services is increasing constantly and third-generation phone terminals and services are also registering excellent growth rates, thanks to the availability of new digital content and to very aggressive promotional campaigns by the operators.

In 2003, for the first time since market deregulation, the number of licensed fixed network operators in Italy dropped from 156 to 146. Over 90 percent of the market is covered by 7 operators. The major Italian telecommunications operators include the former state monopoly Telecom Italia, which remains Italy's dominant operator across all communication services; Wind, the second-largest fixed network and the third-largest mobile communications operator in Italy; Eutelia, Atlant, Tiscali, the metro Ethernet company Fastweb, the Swedish company Tele2, MCI, Colt Telecom, and Cable & Wireless.

The four mobile network operators, which also hold a UMTS license, are TIM Telecom Italia Mobile (which is merging with Telecom Italia), Vodafone Omnitel, Wind and H3G.

With regard to Internet usage, Italy has experienced explosive growth in the past five years and the number of business and home Internet users has boomed: estimated at 22.6 million in 2003, it is expected to reach 25.5 million in 2004 and 28.6 million in 2005. Italian Internet users are relatively less mature in the use of this medium with respect to the European average, but they are rapidly catching up. Broadband access is developing very rapidly, with 5.5 million users connected at the end of 2004, mainly due to the increasing offer of interactive digital content.

The Wi-Fi (Wireless Fidelity) technology is also developing very rapidly. Over 1000 hot spots are already available throughout Italy and investments for Wireless networks are expected to grow exponentially.

In the broadcasting sector, the Digital Terrestrial Television, with over one million decoders sold since its introduction one year ago, is forecast to become one of the main vehicles for the diffusion of digital contents to Italian families and for access to online services offered by the public administration. The number of users is also constantly growing for the satellite pay-TV, Sky Italia (owned by the Murdoch group) and for the cable TV packages offered by the Italian company Fastweb.

As a result of market development, the digital entertainment segment is expected to grow at a rate of 20-25 percent in the next three years. This includes subscriptions, prepaid cards and pay-per-view for terrestrial and satellite TV access and access to digital contents via mobile phones and via the internet (music downloads, online video games, etc.).

Part 4 - The Marketplace for Digital Equipment & Systems

After two very difficult years, some signs of recovery appeared in 2004 for the computer and peripherals sector. Companies kept consolidating and rationalizing their existing infrastructure, paying more attention to Return on Investment and Total Cost of Ownership. According to ASSINFORM, hardware investments totaled \$5.7 billion in 2003 and \$2.9 billion in the first semester of 2004.

Pressure on prices continued to be strong and sometimes created a strong divergence between shipment trends and value trends. In spite of a very modest 0.2 percent aggregate growth value in the first semester of 2004, sales in units grew 21.2 percent for Personal Computers (versus 2.3 percent of the same period in 2003), 0.8 percent for midrange servers (versus 9 percent) and 33 percent in term of MIPS for large systems.

At the end of 2003, the total number of personal computers installed in Italy was estimated at 15,480,000. Penetration rate is still a long way off the figures for the main European countries, and market potential is still very high and far from saturation.

In the first semester of 2004, the drop of 20 percent in the price of PCs favored a recovery in terms of shipments, with 1,363,000 PC units sold to the business sector (an increase of 20.9 percent over the previous year) and with 274,000 PC units sold to the consumer sector (an increase of 22.6 percent after three years of dramatic drop in demand).

In the past few years, portable PCs have been gaining market share over desktops and servers. In the first semester of 2004, with over 642,900 units sold, portables grew 39.8 percent in volume versus 11.9 percent for desktops (921,125 units) and 7.9 percent for PC servers (72,800 units). Portable PCs now account for 41.1 percent of the PC market (versus 26 percent the previous year), confirming a growing interest for mobile applications.

The midrange server segment and the workstation segment are facing growing competition from both mainframes and Wintel platforms, which are aggressively priced and offer continuous performance improvements and a wide range of applications. The mainframe/high end server segment continues to record considerable growth, confirming the trend of larger enterprises to investment in the rationalization and better manage their information systems.

The printer segment has been suffering more than other segments from growing pressure on prices, and shipments in 2003 decreased by 5.4 percent (to 2,460,000 units, compared with 2,600,000 for the previous year).

The storage segment has been experiencing a stagnating situation, but prospects are good in view of the implementation of new Italian laws calling for data protection, business continuity and disaster recovery procedures.

The Italian consumer electronics hardware market is becoming increasingly important and it offers excellent business opportunities. EITO, the European Information Technology Observatory, estimates sales of 4.6 billion Euros (approximately \$5.5 billion) in 2004. Digital technology products, such as DVDs, LCDs, home theater equipment, digital cameras, satellite components, game consoles and camcorders, are showing 2-digits growth due to expanded availability in retail stores and to dramatically decreasing prices.

Part 5 - Future Prospects in this Market

In spite of recent modest results, trade sources indicate that the general outlook for the Italian ICT market in the next two years is positive.

2004 was still considered a transition year, and several market analysts expect a recovery in software and computer services investments. According to ASSINFORM, best prospects are for projects designed to cut costs and complexity, raise flexibility and efficiency or integrate different IT systems; application integration projects at all levels (from databases to solutions) based on different approaches: portals, Application Servers, Web Services, etc.; and security projects, where the main issues are common to all sectors of the economy.

Sustained growth is expected in both B2B and B2C e-commerce solutions. In the B2C, the most promising purchased items will be computers and software, books, Internet music and videos, and bookings for entertainment events, vacation and travel.

The growing complexity of network technologies and the need for specialized skills to implement e-business and internet security strategies is leading large and medium-sized Italian businesses to increasingly outsource services to supplement their in-house capabilities.

ICT security software and services are expected to grow at sustained rates in the next three years. These include risk analysis, security infrastructure design and implementation, development and monitoring of security management policies and management of support applications; intrusion prevention and detection systems, identity management solutions, secure networking equipment, firewall software and equipment, secure content control software, internet access control tools, and security authentication, authorization and administration tools; business continuity and disaster recovery procedures.

Trends in the telecom sector indicate a gradual decline in fixed networks and a steady growth in the mobile segment. Key factors for the recovery will also be extended broadband availability and wireless technologies. Telecom value-added services will continue to be a particularly dynamic segment.

The Italian IT hardware market is far from being mature and IT potential remains considerably high. As soon as the economic conditions improve, demand is expected to be stimulated and the market to recover, especially in view of the fact that companies will gradually need to replace the equipment installed at the end of the 1990s in preparation for the Year 2000 and the euro.

U.S. technology and standards are highly regarded. The best opportunities for success lie with American companies offering innovative and sophisticated products and services, who are willing to team up with well-established Italian firms for distribution or joint venture agreements.

Part 6 - Important USDOC Resources in this Market

Every year, the Commercial Service (CS) in Italy organizes the participation of a delegation of U.S. companies to Infosecurity/Storage Expo, Italy's most important ICT security and storage show, held annually in Milan in February. In 2005, the Commercial Service will also recruit U.S. companies to participate in the Wireless Forum, a major

event exclusively devoted to wireless technologies and solutions, to be held in Milan in April 2005. The Commercial Service can also assist U.S. companies in organizing Single Company Promotions through presentations to potential clients and business partners in its conference rooms at the U.S. Embassy in Rome and the U.S. Consulates in Milan, Florence and Naples. CS Italy web site: <http://www.buyusa.gov/italy/en/>

Kazakhstan

Capital:	Astana
Population:	15,205,100 (December 2005)
Languages:	Kazakh, Russian
Monetary Unit:	Tenge
Exchange Rate:	\$1/KZT 130
GDP per Capita (in US\$):	2,180

Part 1—Market Overview

Kazakhstan's government identifies Information and Communications Technologies (ICT) as a strategic industry in need of modernization, and it has a long-term plan of modernization and liberalization of its telecommunications networks. The biggest challenge for telecommunications in Kazakhstan is its small population spread over a vast territory. Kazakhstan generated 1.6 Billion U.S. Dollars (216.7 Billion Tenge) in telecom revenues in 2005 with the increase of 27.7% over 2004 revenues.

In the structure of revenues 41.7 % belong to wireless communication services, 19.7% to international connection services, , 8.1% - local telephony, 3.6% - radio communication, broadcasting and television services, 6.1 % - data transmission and I-net services, where Internet services account for 4.7%, courier services account to 2%. Revenues from mobile communications grew most dynamically and increased by 65.3% in 2005 from 2004. Revenues of Internet services grew by 1.6 times, and courier services grew by 39.3%.

Key growth drivers of the telecom sector include the deployment of fiber-optic network across Kazakhstan, providing international connectivity, digitalization of exchanges surpassing 64 percent by the end of first quarter of 2005, adoption of a new law on telecommunications in July 2004, and liberalization of the market.

Kazakhstan has a relatively strong fixed-line penetration of around 15.9 telephone lines per 100 inhabitants, with six operators of fixed-line telephony serving about 2.5 million subscribers in Kazakhstan. Fifty percent government owned Kazakhtelecom with its 2.4 million subscriber base dominates the market. Mobile communications is the most

rapidly developing segment of the communications market with revenues increased by 65.3% in 2005 over 2004. By the end of 2005, mobile operators in Kazakhstan had 3.8 million subscribers in comparison with 900 thousand at the end of 2002, surpassing the number of fixed-line subscribers. This is about 25% of all population of Kazakhstan. Currently, there are three mobile operators in Kazakhstan, including two GSM operators: GSM Kazakhstan (trademarks Kcell and Activ) with about 2 million subscribers, and KarTel (trademarks K-mobile, Excess, and Beeline) with 1.8 million subscribers, and one CDMA operator Altel (Dalacom and Pathword trademarks) with 300,000 subscriber base.

The new telecommunications legislation was adopted in June 2004 by the Parliament and signed by President Nazarbaev into law. It is the main regulatory and legal foundation for the liberalization and development of the telecom sector in Kazakhstan. The main provision of this new law is to provide all operators equal access to the telecommunications network of Kazakhstan, to introduce universal services to conform to practices in other countries, to bringing in a system of alternative operators of international and long-distance services by abolishing Kazakhtelecom exclusive license. However, the new rule still limits foreign ownership to 49% for operators of the ground fixed lines providing international and long-distance telephony services. Kazakhstan plans to fully liberalize its telecommunications market by the end of 2006.

GDP growth in Kazakhstan is projected to be 9% in 2005 from 2004, inflation is projected to be 7% in 2005 from 2004.

Part 2—The Marketplace for Business Process Technology

The computer services sector is rapidly expanding to meet increased market demand from growing domestic businesses needing the latest information technologies, equipment, and services. More small- and medium-sized businesses also are becoming computerized. In addition, the government of Kazakhstan also has a need for automation of its financial and educational institutions, customs agencies, and ministries. In this regard, in 2004, Kazakhstan's government adopted a program of formation of an electronic government in

Kazakhstan for 2005-2007 and allocated 51.9 billion Tenge for this program (USD 400 million, exchange rate is Tenge 130 to USD 1). An additional 150 million Tenge (USD 1.2 million) is planned to allocate from the regional budgets for realization of the informatization program.

The market is moving gradually towards services instead of only hardware and software solutions. The growing demand for computer services includes integration services, systems and networks deployment, hardware maintenance, localization of foreign software, IT-consulting, installation and maintenance of software packages, and training. Also, web-design services are steadily growing due to expansion of local Internet service providers in Kazakhstan.

There are three groups of software companies in Kazakhstan. The first group of companies is software developers that mostly serve government agencies and partially private companies. The second group is concentrated on the development of IT solutions for corporate market. They offer IT consulting services, and installation of software packages of foreign origin as well as self-developed software. The third group of firms sells and installs software applications of foreign companies or has a software sales department as a part of the bigger business of IT consulting and sales of computer and telecommunications equipment. IPR is still an issue in Kazakhstan but end users are gradually moving to the usage of the licensed software, and IT companies experienced two- to three-fold increases of sales of licensed software in 2004 from 2003.

Enterprise management systems services are among the most requested IT services in Kazakhstan. A steady rise in demand for these services is forecasted for the next five years, especially for medium-sized businesses. The ERP/CRM segment has steadily developed in Kazakhstan due to the progress towards clearer strategic IT vision on the part of the management of local companies. Most popular among Kazakhstani businesses are MBS solutions like Navision and Axapta, due to active promotion of Microsoft Business Solutions certified partners. German business solutions provider SAP is very

active in Kazakhstan as well. Since 1997, it installed more than 20 solutions for enterprises in Kazakhstan, and plans to double its market share in 2005.

Data Processing Management services are mostly used by banks, telecom providers and big industrial enterprises in the energy sector. With the rapid development of the banking system in Kazakhstan, the range of services increases, which dictates the demand for latest information technologies. Data processing management and maintenance services are used by banks and telecom operators for support of their own systems as well as for development of the customer service and call centers.

All major U.S. IT market players are represented in Kazakhstan including Hewlett-Packard, IBM, Dell, Intel, Microsoft, Oracle, Sun Microsystems, Robertson & Blums, and some others. These U.S. companies gained a good position in this market and have a variety of clients among Kazakhstani and foreign businesses, and governmental entities. For example, Microsoft reports that it doubled its sales in 2004 from 2003 in Kazakhstan, while Intel's turnover was up 128 percent in 2004 from 2003. Oracle plans to increase its sales in 2005 in the Central Asia region by 100 percent. Ninety percent of Oracle sales are in Kazakhstan with 200 customers.

Major end-users of computer equipment, services and software include governmental institutions, foreign companies and joint ventures, and local businesses including big national companies. About 40 percent of end-users are comprised of governmental entities that announce procurement tenders for information technology services. Private sector demand makes up 60 percent. Fifteen to twenty percent of corporate customers are made up of foreign companies and joint ventures in the energy sector, banking, accounting, and infrastructure sectors. There is a significant potential for the increase of demand for information technology services including system integration and development of customized software, due to boosting oil and gas business activity in the region, and development of related infrastructure projects.

Part 3—The Marketplace for Communications Technology

The state-controlled telecommunications company Kazakhtelecom is the national telecommunications operator and the largest telecom company in the country. It provides a full range of communications services, including basic voice services (local, domestic, long distance and international); telegraph and telex; data services; access to the Internet; channel leasing; satellite network services; and telephone business network services. It is also the sole rural communications operator in Kazakhstan. Kazakhtelecom is actively building a fully-digital national telecommunications network based on digital local and long-distance switches and fiber-optic lines linking all major cities of the country. In addition, companies like KazTransCom, a subsidiary of KazMunayGas, the national oil company, and Transtelecom, a subsidiary of Kazakhstan's national railroad company, are using existing transport networks to lay fiber optic and other communications lines, positioning themselves to compete in a deregulated market as well as serving their own companies' communications needs. Kazakhtelecom is expanding its service to rural and remote areas through DAMA-technology satellite communication stations. There are also several private telecom companies in Kazakhstan that cover one-third of the market. After the liberalization of Kazakhstan's telecom market in mid-2004, Kazakhtelecom was deprived of its exclusive license for provision of international and intercity calling services. In 2005, five Kazakhstani companies besides Kazakhtelecom, namely, Transtelecom, Kaztranscom, Arna (DUCAT), Nursat, and ASTEL received licenses for provision of long distance international and intercity connectivity services. Total telecom services operators licensed in Kazakhstan by mid-2005 accounted to 1,500, according to the Agency for Informatization and Communications. Sixteen operators are active in Almaty, the commercial capital of Kazakhstan.

A dozen companies with the domination of Kazakhtelecom, provide dial-up and leased line (ADSL) Internet access in cities throughout Kazakhstan. A very small, but rapidly growing portion of Kazakhstan's population is using the Internet. Between 2000 and 2003, the number of Internet subscribers grew about 200% a year. According to local statistical researchers, the number of Internet users in Kazakhstan was about million people by the end of 2004, among them around 280,000 regular users of Internet. By the

end of 2005, the government expects 10% of Kazakhstanis to be users of the Internet with the drop down of connectivity costs, and plans to connect 75 percent of all Kazakhstani schools to Internet. With the introduction of the so-called universal service, the rural population of Kazakhstan will be able to use Internet in the near future.

Kazakhstan spent up to USD 355 million on imports of telecommunications equipment in 2005, up 45 percent from 2004 (USD 244 million). There is almost no domestic production of telecom equipment except coaxial and fiber-optic cables, and small PBXs production. Volumes of domestic production are far from demands of the market. Imports represent 98% of the telecommunications equipment market. United States moved from the place five in the list of top ten importers of telecommunications equipment to Kazakhstan in 2004 to place three. The U.S. share in total imports to Kazakhstan in 2005 was 11% after Sweden (24 %), and Germany (14%). American companies most active in Kazakhstan are Motorola Lucent Technologies, Wincomm, Avaya and Cisco Systems, among telecom providers is MCI/Worldcom. Foreign manufacturers and suppliers active in Kazakhstan are Ericsson, Alcatel, Nokia, Siemens, Huawei, ZyXEL, ZTE, and others.

Part 4—The Marketplace for Digital Equipment & Systems

The computer equipment market in Kazakhstan can be divided into high-end computer products and low-end computer products. In the market for mobile PCs, brand name notebooks has more than 95 percent market share versus locally assembled mobile PCs with the dominance of major brands such as Acer, ASUS, Fujitsu Siemens Computers, and HP. In the market of desktops, locally assembled computers occupy about 65 percent of the market, while world-known brand name computers occupy 35 percent of the market, according to industry representatives. Leading local assemblers of computers tend to form their own local brands. In recent years, most of the IT companies took advantage of considerable government projects and corporate clients. Currently, demand from the corporate sector for latest technologies is stable. At the same time, many IT companies see a rapidly growing demand for computers and peripherals from the retail

sector. Sales volumes growth declared by Fujitsu Siemens in 2005 in different market segments is as follows: sales growth of business mobile PCs was up 736%, sales of UNIX servers –1,355%, and sales of data storage systems was 130%. These numbers are very representative and reflect the real sales growth potential for digital equipment and systems in Kazakhstan.

U.S. companies most active in the computers/peripherals market in Kazakhstan are IBM, Hewlett Packard/Compaq, and Dell.

Computer penetration in Almaty, commercial capital of Kazakhstan, is estimated 18 PCs per each 100 inhabitants in 2005, considerable growth from 12 PCs per each 100 inhabitants in 2003. Industry experts estimate that total market size for computers and peripherals in Kazakhstan is 200-300 million dollars.

The retail market for consumer electronics is also booming in Kazakhstan. According to BISAM, total retail market of 12 most popular products in Kazakhstan grew 70 percent from USD 734 million in 2003 to USD 1,244 million in 2004. Products include TV sets, cellular phones, AV systems, displays (CRT and LCD), camcorders, DVDs, and printers including multifunctional printers. LG Electronics occupies leading positions in this market, with another Korean company Samsung, following it very closely. Retail chains of consumer electronics become stronger and gradually displace smaller gray market retailers.

Part 5—Future Prospects in this Market

Best prospects in the Kazakhstani ICT sector are as follows.

In the hardware/peripheral sector, consumers are increasingly interested in data storage equipment, servers, multifunctional products (printer, copier, fax, scanner, all-in-one), and LCD screens.

In the software sector, consumers are interested in all types of standard applications, web content management software and solutions, networking software and network security products, development tools, Windows, Linux and UNIX-based products, storage area

management solutions, CRM and ERP products, and application management products. There is a strong demand for game software in the consumer market.

In the services sector, demand is focusing on all types of system integration services as well as information system security services, and IT-consulting.

There also is growing demand for telecom equipment and services for mobile, fixed line telephony, cable, broadband, mobile (value-added) data services, and all types of Internet-related communication services. In 2006, the major operator, Kazakhtelecom, plans to begin implementation of the New Generation Network (NGN) project including deployment, first, in Almaty, and then in other cities in Kazakhstan, of a new broadband infrastructure based on the IP/MPLS and Metro Ethernet technology. The government plans to attract operators to provide universal services in the rural areas of Kazakhstan by deployment of CDMA-450 network, and installation of communication kiosks. Also, the government is going to open a tender on DCS 1800 frequency to attract the third GSM operator in Kazakhstan in 2006. In early 2006, Kazakhstan plans to launch its own first communications satellite, which is currently under construction by Russia's Khrunichev Research and Production Center. This will be the first communications satellite owned by Kazakhstan. Kazakhstan annually spends some USD 26-28 Million on satellite channel rentals. The launch of Kazakhstan's own satellite will cost USD 65 Million, the initial expenses of which will be repaid over the first three years. Also, the government of Kazakhstan allocated 44 billion Tenge (approx. USD 340 million) for the development of Kazakhstan's space program, and plans to launch four more telecommunication satellites by 2010.

Kazakhstani Engineering and Technology Transfer Center launched an IT park in 2005 in Almaty. The world's leading IT and communication companies are involved in its operations and memoranda of cooperation have already been signed with Microsoft, Hewlett Packard, Siemens, Cisco Systems, Tels, LG, Oracle, Sun Microsystems, Samsung and others. The IT Park aims to improve and develop the IT industry in Kazakhstan as part of the national economic priorities, including diversification, import

substitution, hi-tech development and the creation of new jobs for highly qualified personnel.

Part 6—Important USDOC Resources in this Market

The U.S. Commercial Service Kazakhstan will be organizing the U.S. Pavilion at the Kazakhstan International Telecommunications Show on May 30 – June 2, 2006. The show is expected to highlight the latest telecommunications, IT technologies, software and automation technologies. U.S. firms should seriously consider the advantages of this option to explore business opportunities and obtain exposure in the Central Asia market. The KITEL show provides a means for testing market potential and making contact with prospective agents and distributors in Kazakhstan and Central Asia. This exhibition is the largest and most prestigious event in the field of telecommunications and IT in Kazakhstan and Central Asia, with around 400 exhibitors from 50 countries. In 2005, KITEL received 35,000 visitors from all regions of Kazakhstan, as well as from Kyrgyzstan, Uzbekistan, Turkmenistan and Russia.

KITEL 2006 will feature:

Five Specialised Sections:

- Telecommunications, Internet
- Computer and IT Technologies
- Banking and Office Technologies
- Security Systems
- Cable production
- Mobile and Satellite communication

Special Events (smaller satellite shows in the same venue)

- Software and Automation Exhibition (Software Showcase)
- Broadcasting & Broadband Exhibition (TRBK)

- Bank Technologies Exhibition (BankTech)

The event is organized by the International Trade and Exhibitions British Company ITE Group PLC (UK) and Iteca LLP, its partner in Kazakhstan, Central Asia, Caspian region, Caucasus, Turkey and Russia. ITE Group PLC annually holds over 70 specialized international exhibitions and conferences in Kazakhstan, Kyrgyz Republic, Uzbekistan, Turkmenistan, Azerbaijan, Georgia, Tajikistan, Russia and Turkey.

To register for the participation in the U.S. Pavilion at the KITEL exhibition, please contact Commercial Specialist Liza Vostrikova, U.S Commercial Service Kazakhstan at Liza.Vostrikova@mail.doc.gov

Market Research Reports on ICT industry in Kazakhstan can be found on www.export.gov

(registration is required) or requested from the U.S. Commercial Service Kazakhstan (e-mail: Almaty.office.box@mail.doc.gov)

- Doing Business in Kazakhstan: 2005 Country Commercial Guide
- E-commerce in Kazakhstan 2005
- EBRD-Kazakhstan Telecoms & Media: Kazakhstan Telecom Corporate Loan
- Developments in the Kazakhstan Telecommunications Market up to August 2003
- Telecom Equipment Certification

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Netherlands

Capital: Amsterdam Population: 16.3 million Languages: The official language is Dutch. English is widely spoken as a second language. Monetary Unit: Euro Exchange Rate: 0.82 GDP per Capita (in USD): 29,950 Euro

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Part 1—Market Overview

The Netherlands is strategically located in Europe, bordered by Germany to the East, across the North Sea from the United Kingdom and Belgium to the South. The Netherlands is a founding member of the European Union (EU), and, although small in size, the country plays an important role in the EU at various political and governmental levels. About the size of the state of Maryland, the Netherlands is densely populated with a total population of 16.3 million people and almost 7.1 million Dutch households. There is an active working population of 7.04 million people and some 120,000 registered companies with a staff of five or more people. The Netherlands has an open

economy and is a technologically advanced country with an excellent transportation and telecommunications infrastructure. The country offers a compact market, which is used by many Information and Communication Technologies (ICT) companies from abroad as a pilot market and a major transportation hub for distribution of products and services throughout Europe. The Netherlands depends heavily on foreign trade. It is the eighth largest importer from the United States and has the well-deserved reputation as the "Gateway to Europe". The ease of doing business makes it an attractive market for both new-to-export and new-to-market U.S. exporters. The combination of logistical expertise developed from centuries of international trade, the fact that almost everyone speaks English, and the Dutch acceptance of U.S. products and services makes the Netherlands a prime destination market and the leading location for European distribution centers. The Dutch government stimulates R&D and innovation in the development and use of advanced technology products. It supports entrepreneurs in starting up new businesses and developing innovative high technology products.

Part 2—The Marketplace for Business Process Technology

The software market, estimated at USD 6.3 billion in 2005 continued to be the fastest growing segment within the Information Technology sector. The Dutch software market primarily depends on imports. Local software development mostly concentrates on business applications and custom products. Exports of Dutch products are limited. Most exports consist of re-exports by local subsidiaries of non-Dutch producers. U.S. companies are the largest suppliers (e.g. Microsoft and other multinational software producers) followed by European software producers. The total market is almost equally divided into applications software and systems software. Windows is the standard in the business market, although the use of Linux is gaining ground. While UNIX, closely followed by Windows, is still the most commonly used operating system for servers, Linux' market share is estimated at about 15 percent and is growing. The Dutch government promotes the use of Open Standards and Open Source Software within the government. The government and financial sectors traditionally have been major end-users of all types of software products. The business market, with an increasing need to streamline business processes, has also been a significant user. More recently the SME

market has begun to emerge as an attractive new market for ICT suppliers. The consumer market has also grown rapidly in recent years due to increasing use of the Internet, games and online gaming.

The Dutch IT services market is estimated at almost USD 8.1 billion in 2005. This market is expected to continue to grow and benefit from the implementation of new technologies and increasingly complex systems that require the expert knowledge of specialists. Driving factors also include lack of in-house capacity, focus on core business, security concerns, as well as quality, cost and efficiency considerations. The growing use of the Internet and its applications are also expected to increase demand for external services, e.g. in the areas of CRM and procurement implementations. The Netherlands has a large number of services providing firms ranging from very small to very large, and from hardware vendors to management consultants. Local production is considerable, but it includes services provided by local subsidiaries of companies headquartered outside of the Netherlands. A number of U.S. firms have successfully established themselves in this market, primarily with subsidiaries and through acquisitions. They play a prominent role and are expected to continue to do well, as others successfully enter the open Dutch market for the first time. There is an ongoing tendency for larger Dutch services firms to merge or acquire other service companies and become more international. IT-offshoring is growing and slowly gaining in importance. IT services are provided almost exclusively to the business market. The consumer market for these services is small. Important end-users include financial institutions, government, healthcare and utilities.

Part 3—The Marketplace for Communications Technology

In 2005, the total Dutch telecommunications market amounted to approximately USD19.5 billion. At the time, 85 percent of the total market consisted of services, while the remainder was telecommunications products and equipment. The telecommunications services market was worth an estimated USD17.1 billion in 2005. Future prediction is that the market will continue to grow by 3-5 percent over the next few years. The business segment represents approximately 65 percent of the

telecommunications services market. Growth in that sector is driven by the increased use and availability of broadband, expansion of business and mobile communications, and the rollout of new networks.

In 1989, the Dutch telecom services market was privatized. KPN Telecom, the former PTT, continues to be a prominent player in the overall market. Today, KPN is active in all fields of telecom. However, in spite of KPN still being a dominant participant in the Dutch telecom market, the Netherlands is part of the more liberalized telecom countries in Europe and proactively promotes competition. OPTA, the Dutch independent regulator, closely watches and stimulates competitive developments.

The Dutch market for fixed telephony is shrinking as more customers replace fixed with mobile connections. Additionally, Internet telephony via ADSL and cable has grown considerably in the last years. Five mobile telephone companies operate in the Netherlands. The Dutch market for mobile telephony (GSM) is almost saturated. There are close to 16 million subscribers (some people with two or more subscriptions) and there is fierce competition between operators. New trends and technologies for mobile phones with built-in Bluetooth functions, color screens, digital cameras and Multi-media Messaging Services (MMS) gave a new impulse to the mature mobile telephone market. Among the first in Europe, the Dutch government auctioned five IMT-2000/UMTS frequency licenses in 2000. These licenses went to the five existing mobile operators. UMTS networks are currently being installed. Cable density is more than 90 percent in the Netherlands. Several cable companies offer telephony services and cable is increasingly used to access the Internet. The Netherlands has one of the highest broadband penetration rates in the world. Stimulated by the government, there are about 20 connections per 100 inhabitants, while more than 50 percent of Dutch households and 56 percent of Dutch businesses have broadband. At the beginning of 2005, 9.1 million Dutch people spent time on the Internet. Dutch consumers spent an estimated USD 2.6 billion shopping on the Internet in 2005. The City of Amsterdam hosts “AMX-IX”, the largest Internet Exchange in Europe. Data communication services is a growth area and

is expected to gradually overtake voice telephony services in importance. The market for wireless networking is growing.

Part 4—The Marketplace for Digital Equipment & Systems

The total hardware market amounted to almost USD 4.6 billion in 2005. The business market for desktop PCs still is primarily a replacement market. In 2005, the market for notebooks increased by more than 10 percent. The use of Personal Digital Assistants (PDAs), palmtops and other handhelds showed more limited growth. Driven by opportunities offered by the Internet and new applications, the consumer market for multimedia PCs and laptops was greater than before, but growth rates have slowed down some. Growing use of the Internet and larger software applications, e.g. CRM, have augmented the sale of small to medium-sized servers. While the number of printer units sold – many of them multi function printers - gradually increased over the last few years, the market did not show significant changes in the last year, mostly as a result of continuing price decreases. U.S. manufacturers are leading providers of PC and peripheral products. Although prices continue to decrease and margins are low, it is expected that hardware sales will continue to grow slightly or maintain small growth rates over the next few years. Government, financial services and other business segments are the main end-users. The SME sector, and consumer sector are still growing in importance. In 2005, the total market for digital entertainment products and home electronics reportedly amounted to approximately USD 3 billion. Particularly popular were DVD players and recorders, digital cameras, MP3 players, and flat panel color television sets.

Part 5—Future Prospects in this Market

In the software segment, the following will be best prospects in 2006: standard software applications, networking software and network security products, e.g. intrusion detection and prevention products, development tools, storage management software, Customer Relationship Management (CRM), Enterprise Resource Planning (ERP), application management and content management products, and game software for the consumer

market are expected to offer good prospects for the coming years. In the services segment, IT outsourcing - desktop and network management, application hosting and implementation, Business Process Outsourcing (BPO), security services (assessments and scans), network consulting and integration, support/training and all types of Internet and E-Commerce related consulting and services are expected to grow. The following segments within the telecom sector are also expected to show further growth in the next years: mobile (value-added) data services, all types of Internet related communication services, outsourcing and maintenance of infrastructure installation, VoIP services for the business market, security applications for mobile communications, entertainment applications, multimedia services and applications. In the hardware sector the following growth areas are forecasted: data storage equipment, laptops/notebooks, small/entry level servers, laser printers, color inkjet and multi functional printers, TFT and LCD screens.

Part 6—Important USDOC Resources in this Market

The U.S. Commercial Service has offices at the U.S. Embassy in The Hague and U.S. Consulate General in Amsterdam (www.BuyUSA.nl) The U.S. Commercial Service assists exporters of U.S. products and services (51% U.S. content) in entering or expanding their export sales to the Netherlands. Services cover a range of products, including market research, agent/distributor searches/appointments, company promotions/product introductions, contact lists, company profiles, trade missions, seminars, and more

The main ICT trade events in the Netherlands are held at the RAI Exhibition Halls in Amsterdam (www.rai.nl), or in the Jaarbeurs in Utrecht (www.jaarbeurs.nl.)

Norway

Capital:	Oslo
Population:	4 600 000
Languages:	Norwegian
Monetary Unit:	Kroner (NOK)
Exchange Rate:	6.71601
GDP per Capita (in US\$):	51,300

Local Market Commercial Specialist

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Part 1—Market Overview

The Norwegian market is relatively small, but technology savvy, innovative and largely homogeneous, and often one of the first to try out new technology. This makes Norway, along with its Nordic neighbors, a good entry point into the European market for many U.S. companies. Statistics Norway indicates that the overall ICT market in Norway is worth more than USD 60 billion.

The Norwegian ICT market is in a high growth period, and is expected to remain so for several more years. After a few relatively slow years, some ICT market segments now experience growth rates of 15%, according to Statistics Norway. IDC Quarterly Executive Service expects nearly a 6% overall growth rate in the ICT sector in 2005 in the Norwegian market.

Most market segments will enjoy increasing revenues, and Norway is expected to see higher growth rates than most other European markets. High sales of PCs, HDTVs, portable music and digital cameras drive the consumer electronics market. Outsourcing, systems integration and application management are strong segments in the service

market and CRM and other enterprise software are again generating high revenues in the integration market after a slow period. This growth period is expected to last at least until 2009.

Verticals

Norway is the world's third largest exporter of crude oil and natural gas and many of the ICT companies serve this increasingly high-tech market. Shipping, fisheries and other maritime industries also make significant contributions to Norway's GDP. An IBM Research study shows that the finance, insurance and media market has the highest percentage of total cost related to ICT (36%), whereas manufacturing (20%) and the public sector (13%) come in at number two and three, respectively. A recent Statistics Norway survey shows that the ICT market related to manufacturing is the fastest growing sector.

Part 2—The Marketplace for Business Process Technology

ICT outsourcing and systems integration services are experiencing a significant growth period in the business-to-business market. This development is highly welcomed by the industry after a few slow years with red figures for many ICT service companies.

Outsourcing and systems integration are also leading sectors and currently the services that generate the highest revenues in the industry. Hardware support and application development are market segments that expect slower growth in the Nordic countries, whereas software support and network and desktop outsourcing (NDOS) are expected to grow at a faster pace. Application management (AM) and hosted utility services are by IDC expected to be the fastest growing sectors in the ICT Business-to-Business sector in Norway and the Nordic region.

Major product categories such as EPR (Enterprise Resource Planning) and CRM (Customer Relationship Management) systems experience higher sales and good business opportunities for the vendors and integrators. Siebel Norway recently stated that “the market for CRM is boiling”. SAP and Oracle also report higher sales. The reasons for implementing comprehensive enterprise systems in companies also seem to shift from a

cost-cutting focus to profit-generation. IDC's Enterprise Technology Trends Survey for 2005 shows that surveyed companies in April 2004 considered that their primary motive for ICT investments was to contribute towards cost-cutting (65%), and that increasing revenues was secondary (35%). In February 2005, the ratio was 50/50.

Unix, Linux and Microsoft are the leading platforms. 98 percent of the software applications run on (or can run on) the Microsoft-platform whereas 61 and 60 percent respectively can run on Unix and Linux. Private sector is the largest buyer of software (66%), whereas public sector buys 16% of the market.

The number and value of publicly available tenders also indicate that activity is up since last year. The government is a significant institutional buyer, and restructuring in the public sector generates many private sector jobs.

Part 3—The Marketplace for Communications Technology

The most important basis access network technologies have traditionally been the landline telecommunications network, satellite systems, cable networks, mobile systems and broadband radio systems. Most of the players are pure service providers who relay and resell services. These players depend on purchasing network capacity in order to provide their services. The obligation to provide access to existing network resources has been a precondition for new providers being able to establish themselves in the market and offering services in competition with the national provider Telenor. IP telephony seems to change this picture.

The private market for IP telephony has been expanding rapidly over the last 12 months. Major players now share the pie and smaller providers consolidate in a market approaching maturity. This is in great contrast to the SME market, where fast movers with good technology and the right alliances will have a great advantage.

Local analysts claim that the slow growth in the B2B market may be a result of focus on the rapid development and urgent need to move in the private market. Also, the business

market will require different types of technologies and solutions and this has temporarily created an entry barrier.

There are few service providers in the B2B IP-telephony market as of November 2005. However, analysts suggest that there are several constellations preparing to invest in the market, and it is unclear who the winner(s) will be in the end. Some of the service providers in the private market are believed to expand to a more demanding professional arena along with broadband and hosting service providers.

IDC reports that outsourcing of IP-telephony (renting broadband services) may be a good option for SME's. By doing so, companies do not have to physically host or buy a phone center, since service providers maintain and host the hardware/network. However, less expensive alternatives will probably be offered, as hardware gets smaller and more user-friendly.

Part 4—The Marketplace for Digital Equipment & Systems

Consumer electronics is increasingly popular. The greatest increase has probably been in the PC market with a 60% increase from Q2 2004 to Q2 2005. The overall growth rate was 22% in 2004 with almost 700,000 units sold. Dell has captured an incredible 50% market share in the business market, and expects that the market will grow steadily in 2005. In 2005 laptops sold more than desktops.

The major online electronics retail stores also report higher revenues. One of the largest retailers, Komplet, reports a 25% increase in revenues in 2005, mostly generated online. Online purchases are increasingly common, largely due to widespread broadband Internet access throughout the country. Flat screen TVs have now reached a critical mass in the population and has accounted for 15-20% of the sales growth. Strategy Analytics expects worldwide flat screen sales to increase 800% by 2010.

The server market grew by 30% in 2004 and was in the beginning of 2005 worth USD 235 million. Demand for server consolidation (larger and fewer servers) is expected to increase. IBM is the market leader (37%), closely followed by HP (34%). Intel processors equip more than half of the servers, and Unix is the fastest growing platform with a 34% market share.

The market is also demanding sophisticated storage systems. Systems Integrators in this market report of 60 to 70 percent storage growth annually. Some clients need to increase their capacity by as much as 200 percent. This expansive growth requires an increased need for sophisticated storage solutions to differentiate cost of data storage based on usage. Storage has historically been distributed on two levels; disks and magnet tapes. Businesses are now looking to use up to five levels, where the cost range (per gigabyte) of storage is ten-fold from the lower end to the most expensive level 1 segment. Storage costs will increasingly be related to the management of moving data - manually or by using software.

US vendors and service providers can profit from this market opportunity by offering analysis services, applications and hardware.

Part 5—Future Prospects in this Market

Growth areas B2B:

- There will be a steady growth in the ERP-S markets. Some of the systems integrated in the high growth period of 1999 will be renewed in 2006, while some last longer. Domestic providers currently hold a relatively strong position.
- Server market, and Information Lifecycle Management (ILS) services.
- Outsourcing will be one of the fastest growing segments in 2006. Hosted Utility Services and Applications Management (not development) are smaller but fast growing markets.

- B2B e-commerce is likely to continue to grow, making procurement systems more integrated in the value chain.
- B2B IP telephony market is wide open.
- Movie theatres are all analogue and are likely to digitalize within the next couple of years
- Content management: Consolidation and growth is expected in 2006. Gartner expects at least 10% growth in 2006.

Growth areas B2C:

- Content providers for cell phones. Mobile entertainment. 3G telecommunications network products is a driver, as UTMS is finally getting popular. A CDMA network is also under construction.
- Home entertainment centers and data storage equipment such as gaming and Mp3-players is expected to continue its growth, flat screen TV's especially. Consumers are also looking for better solutions for storage and printing of their digital photos.
- Banks are currently presenting two e-id standards BankID and BUY-pass, placing Norway in the forefront of secure e-commerce and procurement. The e-id will have a public and private application, being most modern payment system in the world, and boosting e-commerce in general.
- The Norwegian online advertise market was in 2002 USD 40 million, and is expected to reach between USD 88 million and USD 129 million in 2007.

Part 6—Important USDOC Resources in this Market

(Including USDOC programs and events)

The American Embassy in Oslo is well equipped to assist American business visitors. Representing the U.S. Department of State, the Department of Commerce, Department of Defense, the Department of Agriculture, and other Washington agencies, the Embassy provides services and information for U.S. exporters, investors, and their Norwegian

partners. Trade specialists are available to counsel American companies, as well as Norwegian agents, importers and end-users.

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Poland

Capital:	Warsaw
Population:	38.2 million
Languages:	Polish
Monetary Unit:	zloty (pln)
Exchange Rate:	\$1 = 3.18 pln
GDP per Capita (in US\$):	6,381 (2004)

Local Market Commercial Specialist

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Part 1—Market Overview

With over 38 million people, a 2005 GDP preliminarily estimated at 3.2%, a solid economic outlook for the next few years and a strong record of democracy, Poland offers a good potential for American companies in most of industry sectors. Poland is the sixth largest EU market and, after joining the EU in May 2004, has become an attractive gateway to Europe for an increasing number of American suppliers. At the same time Poland maintains strong ties with the United States and welcomes American companies and products.

The telecommunications and information technology sectors are open to U.S. companies and, in general, offer the same regulatory environment as traditional European markets. Upon EU entry, Poland adopted the CE mark regulatory regime. The

Telecommunications Law of September 2004 has been further revised to fully reflect EU directives. Some secondary and enforcement regulations are still missing. As a result, number portability and access to local loop problems are hardly utilized in practice even though they've been solved in theory

A newly created Office of Electronic Communications (UKE) replaced the Office of Telecommunications and Post Regulations (URTIP). The Office of Electronic Communications (<http://www.uke.gov.pl/urtip/index.html>) is responsible for all telecommunications and post market regulatory functions, including licensing and registration of operators, frequency allocation, numbering allocation, controls electromagnetic compatibility issues and approval of radio equipment. The Ministry of Transport and Construction has the responsibility for telecommunications policy (<http://www.mtib.gov.pl/>). The Ministry of Interior and Administration (<http://www.mswia.gov.pl/>) oversees IT/telecom development in the public sector. The Ministry of Economy (<http://www.mgip.gov.pl/>) is the primary overseer of EU structural funds, which are administered by appointed institutions responsible for specific programs.

At the end of 2004, Poland's telecommunications market was estimated at \$13,290 million, which included \$9,760 million for telecommunications services, \$1,380 million for telecommunications equipment and \$2,150 million for networking equipment. In 2004, the information technology market reached \$4.3 billion. With a 13% annual market growth last year and similar growth predicted for the next few years, Poland is one of the fastest growing IT market in the EMEA region. Poland still spends only 2.0% of its GDP on IT investments. Nevertheless, the market offers potential due to additional funds available through EU programs

Part 2—The Marketplace for Business Process Technology

At the end of 2005, the Polish software products market was valued at \$1,070 million while computer services were estimated at \$1.4 billion. Software and services are the fastest developing segments in the overall Information Technology sector.

The applications software currently represents 52% of the software market. The most popular business application software sold in the market includes Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), document and content management and e-commerce. The public sector investments are driven by the development of e-government services, required by the European Union.

As middle size companies are becoming major buyers of ERP applications, the local developers who were traditional suppliers for this segment of the market, are facing growing competition from international vendors offering integrated solutions.

The awareness of IT security issues fast developing e-commerce, especially e-banking, create great demand for information and transaction security. High-end users, especially from the financial/banking sector, telecommunications and large enterprises, usually invest in the latest, enhanced security solutions. Individuals and small companies still need to make up for years of neglected investments in IT security tools. While the security segment is still small, it shows a very strong revenue growth rate.

Software licensing sales, which fall under intellectual property regulations, are subject to a 20% tax withheld by the Polish buyer. Thanks to a Double Taxation Treaty, 10% of the tax is withheld then the American company provides documentation confirming its legitimacy and payment of taxes in the U.S.

Part 3—The Marketplace for Communications Technology

The telecommunications market was completely liberalized in 2002 and there are no restrictions on foreign investments across the telecommunications sector.

Telekomunikacja Polska S.A. (TPSA), the former monopoly, remains a major player in all segments of the market. Privatized with France Telecom as a strategic investor, TPSA still holds over 85% of fixed-line telecommunications services and owns a majority of the telecommunications infrastructure. Fixed line voice services currently have approximately 12.5 million users, with only a minimal growth.

Cellular telecommunications is the most competitive segment of voice services. At the end of 2005, there were almost 28 million users of cellular services, which are provided by three operators. Each operator has a license to provide services in the GSM 900, DCS 1800 and UMTS standards. All operators have started offering UMTS services on a limited basis. The government has made plans to allow internal cellular roaming in the near future.

The value of Poland's internet services exceeded \$1 billion. Some 45% of the local population declares that they use internet - an annual growth rate close to 40%. As operators compete in providing internet services and heavily invest in this area, the availability of broadband access increases and the cost falls down. As a result, broadband quickly replaces the traditional dial-in access. Currently 35% of users access internet by dial-up, 43% use DSL and ADSL technology, 11% - campus networks in Wi-Fi technology, 7% cable TV and 4% other methods. The government sees the use of internet as the primary tool in building Poland's information society. Continued government efforts to educate society and enhance computer and internet education at schools have started to pay returns in terms of increased awareness and interest in the use of internet.

After an initial high interest in the expansion of "hot spots", the interest of investors has cooled down a little. The cost for cellular users proved to be high, especially when compared to limited content offers and limited hotspot locations.

In late 2005, URTiP (now UKE) announced tenders for frequency reservation for 3.6-3.8 GHz frequencies in 317 local counties, three tenders for 1800 DCS licenses and a tender for the 410-430 MHz band for digital mobile point-to-multipoint communications. All these tenders are expected to be concluded shortly.

Part 4—The Marketplace for Digital Equipment & Systems

The computer hardware market at the end of 2004 reached \$2.5 billion, with the personal computer segment alone estimated at \$1.5 billion.

Last year, there was a considerable decline of local small and micro assembly of personal computers, many of which couldn't meet CE mark requirements, effective May, 2004. This market trend benefits suppliers of brand computer equipment, which already fulfill these requirements.

As the economy improves, consumers are becoming major buyers of personal computers, electronics and consumer digital equipment. The demand for digital photography and supplies have grown twofolded in 2005. Due to high prices, most of the demand is for middle class equipment.

Part 5—Future Prospects in this Market

The best prospects in the Polish telecommunications sector are the development of mobile telephony. There are good prospects for all kinds of wireless technologies. As well, equipment in the 2.4 GHz and 5.4 GHz standard do not require a license with some limits on the equipment type and range.

Best prospects for American suppliers exist in all segments of the IT market, especially wireless equipment, specialized software, internet solutions and the security area. Good

prospects also include networking equipment and computers, components and peripherals.

The most effective means of selling in Poland is through a distributor who maintains relationships with dealers and systems integrators. Polish partners expect that vendors will share the market entry cost and actively support them in marketing campaigns. The importance of a direct presence in Poland cannot be underestimated.

Part 6—Important USDOC Resources in this Market

The U.S. Commercial Service provides American exporters with general information on Poland and its business climate, market research reports on the industry sectors and selected segments of industries, identified as best prospects. Our commercial staff is available for counseling on company specific interests. We work with other U.S. Department of Commerce and state offices and industry organizations on Trade Missions of American companies to Poland. We also assist U.S. companies through several fee-based services, such as Gold Key Matching Service, International Partner Search and Single Company promotion.

Please see <http://www.buyusa.gov/poland/en/> for detailed information on our activities and programs.

Portugal

Capital: Lisbon Population: 10.57 million Language: Portuguese (official), Mirandese (official - but locally used) Monetary unit: Euro Exchange rate: 0.82 GDP per capita (in US \$): \$18,400 (2005 est.)

Portuguese Telecommunication Market

Data transmission services are fully liberalized in Portugal. Mobile telephone service was privatized in 2000 and fixed line telephone service at the beginning of 2001. Portugal Telecom, the former Government telecommunications monopoly and the largest market player, became a private entity. Nevertheless, two years after the full liberalization of the Portuguese telecommunications sector, most of the new fixed operators are now out of business and Portugal Telecom controls 92 percent of the market.

New private operators blame the failure to privatize the fixed net on GOP mismanagement, especially regarding the lack of access to the local loop, the last link in the fixed telecommunications net that permits access to the final customer. Some of these operators have suggested mergers to create new companies, which could compete with Portugal Telecom in the fixed telecommunications business. Many experts feel that only one strong competitor can exist with Portugal Telecom in this small market of 10 million people.

The Portuguese mobile telephone market keeps growing. In 2002, revenues generated by the three major Portuguese operators were over 2.9 billion dollars. Profits generated so far in 2003 are over 3 billion dollars. Actual [mobile phone](#) market penetration is incredibly over 80 percent of the population (roughly 8.5 million people).

The GOP planned to launch the Universal Mobile Telecommunications System (UMTS – 3rd Generation Mobile) through four licensed operators in early 2004. Nevertheless,

ANACOM, the Portuguese Federal Communications Commission, concluded that not all technical components would be ready until 2003, and recommended the system's delay. This technology and the need for a large number of antennas leads to a such high investments that the four licensed operators are presently trying to reach an agreement in order to create a shared company in order to build infrastructure and minimize fixed costs. As soon as the UMTS starts, a boom in European data traffic will occur immediately. During the first phase of the UMTS usage, it is expected to explode from an initial usage of 2 per cent of the population to 50 per cent by 2005/2006. It is also estimated that "mobile" m-commerce across Europe will expand data traffic from \$290 million in 1998 to \$21.4 billion in 2005.

In 2001, Portugal also inaugurated the most ambitious and innovative television project on an international level. TV Cabo, part of Portugal Telecom, and the major television operator in Portugal, partnered with Microsoft Corporation to launch digital interactive TV. This revolutionary technology, which Microsoft is piloting in Portugal, will permit [home](#) TV shopping, [home](#) banking, TV Internet navigation, and even access to one's [home](#) utilities via remote Internet.

Despite the downturn in the global telecommunications market, the telecommunications market in Portugal is expected to continue to grow. Imports constitute 73% of the total market and the U.S. real share is much higher than the 3% reported because most U.S. exports to Portugal come through other European Union countries. There are many opportunities for American companies to expand their business in this area.

The most promising subsectors within the sector and corresponding market size are:

- Cellular terminals
- Switching equipment
- Fixed terminals

DATA TABLE:

(USD Millions)	2001	2002	2003
Total Market Size:	1359	1740	2140
Total Local Production:	295	357	428
Total Exports:	70	80	92
Total Imports:	986	1361	184
Imports from the U.S.:	35	65	115

Computer / Software business in Portugal

Portuguese demand for [computer](#) software should present positive long-term prospects with the introduction of the latest generation of microcomputers, the development of telecommunications, the interconnection of heterogeneous systems and the creation of valued-added networks.

Portuguese demand for [computer](#) software, USD \$482 million in 1999, should continue to experience a high growth rate reaching an 19% annual average over the next three years. Some 80% of Portuguese demand is met by imports. Last year, the U.S. import share was 39%, but the estimated real market share for U.S. trademarks, some of which are bought from U.S. companies with branch offices in Portugal or imported from European subsidiaries, is about 75%. Five U.S. companies are among the 20 largest [computer](#) software companies in Portugal.

The most promising subsectors within the sector, along with an estimated total market size of each subsector at U.S. \$2 million is the following:

- Business Software (applications for financial institutions, especially integrated financial systems)
- Operative Software (manufacturing applications, CAD/CAM, production control and software for main frames)
- [Home](#) Games and other Software

DATA TABLE:

(USD Millions)	2001	2002	2003
A) Total Market Size	651	788	938
B) Total Local Production	231	243	253
C) Total Exports	117	126	135
D) Total Imports	544	680	836

Internet, E-Commerce and Services in Portugal

Data Transmission Services (DTs), including Internet services, are fully liberalized in Portugal. Presently, there are 32 licensed operators offering services, such as; data transmission services, E-mail, EDI, fax storage and transmission and videotext. Internet linkage is an important DTS in Portugal, especially for large companies. The Internet has also become very popular and as a result, Internet-based services have expanded quickly. However, growth has been slower than experienced in other Western European countries, but since January 2000, this situation has been changing due to the great majority of Portuguese ISPs, which are offering free access to the Internet.

Telepac, a Portugal Telecom (PT)* -owned company, is chartered to provide all types of DTS (Data Transmission Services) and is the principal [Internet service provider](#). DTS, excluding Internet services, accounted for 95% of Telepac's business in 1996. However, Telepac has started to face some competition from other operators offering DTS. The most important is Comnexo with a market share of 9%. Comnexo maintains a strategic agreement with British Telecom. Other operators are starting to offer a growing presence in DTS. They include AT&T, Global One, TMI, Eunet, and Compensa (100% owned by IBM).

Internet services are new to Portugal. In fact, there were only about 56,000 paying subscribers and 270,000 non-paying users in 1999. Approximately one quarter of the total investment contributed to this sector was made for the offering of Internet services.

Presently, 25 companies offer Internet access. Telepac still controls more than 75% of the market with 261 POPs (Points of Presence) throughout the country serving some 130,000 clients.

E-Commerce revenues are expected to grow from \$200 million in 2001 to \$2.5 billion in 2003, which would represent an increase of 125%. The GOP plans to invest about \$500 million in the next two years to "close the digital divide" bringing Internet access to a goal of 25% of the Portuguese population. EU structural and cohesion funds should account for approximately \$150 million of this investment. In 2001, only 7.1% of Portuguese Internet sites permitted commercial transactions. A majority of online traders use the Internet only to provide information regarding their products and services. The quality level of these sites, measured in terms of interactivity, personalization, and after sale support to clients is low.

U.S. companies are in an excellent position to take advantage of Portugal's entry in the "New Economy" because of their advanced technology. The GOP is looking at unbundling the local loop in favor of fixed wireless and broadband technologies. The EU seeks to reach 50% penetration of the Internet in all EU countries by 2002. Portuguese penetration is expected to reach 30% by 2004, but it will require more investment in [personal](#) computers and a major effort to encourage Portuguese companies to sell over the Internet. Currently, about 15 percent of the population has access to the Internet. Major U.S. companies such as Microsoft, Cisco Systems, IBM, Hewlett Packard, Sun Microsystems, and Oracle have educational programs with the government and private institutions to expand Internet penetration.

Russia

Capital: Moscow Population: 144.000.000 Languages: Russian Monetary Unit: Ruble Exchange Rate: 28.2640 RUB GDP per Capita (in US\$): \$10,700 (2005 est.)

Local Market Commercial Specialist

Irina Lakaeva

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Part 1—Market Overview

The Russian Information Technology sector represents a growing market for U.S. suppliers. Sales of computer hardware, software, services and value added services are estimated at around \$7.9 billion for 2005, an increase of around 25 percent over 2004. Although IT penetration in Russia is still relatively low, the Russian IT market is expected to grow at an annual rate of 18-20 percent over the next 10 years, making it one of the fastest growing markets in the world. This growth is due to favorable economic conditions and high demand in the government and corporate sector, especially from industries with healthy cash flows such as oil and gas, metallurgy, finance and insurance, telecommunications and retail.

The computer market is driven mainly by new investments by the federal government into special economic zones and its new IT concept adopted at the end of 2004.

Computer hardware, personal peripherals, software and IT services are growing steadily and play an important role in the Russian-U.S. services trade because most high-tech equipment is imported.

Russia's 144 million population has about 15 million computers, thus on a per capita basis Russia has around one ninth of computer ownership as the United States. But Russia's development into a highly computerized society with a continuing demand for high-tech products continues. Consequently, interest in IT runs very high, and there is

little doubt of the huge potential demand for PCs, Internet access and b2c e-commerce should incomes rise from their current depressed levels. However, 95 percent of the Russian IT firms are small and medium size.

Part 2—The Marketplace for Business Process Technology

The software market was estimated at \$1.4 billion in 2004, and growing at an annual rate of 40 percent, and it is predicted to grow up to \$2 billion in 2005. The true demand for software, though, is difficult to determine, due to the high level of pirated software, which some industry sources estimate at up to 85 percent but improving with legislation and enforcement. In 2005 the market for outsourcing software services was estimated up to \$ 1 billion. This market sector is maturing and new entrants will likely face serious competition from long-established companies. Local software producers are quite successful but are often lacking the resources necessary for continued growth on their own. U.S. software firms hold a significant share of the Russian market.

Growing demand has been reported for basic operating systems, integrated ERP (Enterprise Resource Planning) and application tools for database development and management. Anti-virus protection in one sector where Russian software companies are very competitive and have had export successes. Kaspersky Lab . company is top-ten global seller of anti-virus software seeking to capture 5 percent of the global anti-virus market. The distribution network of Kaspersky Lab includes over 40 countries.

Part 3—The Marketplace for Communications Technology

The Russian telecommunications market has demonstrated strong growth over the last year driven by Russia's continuing strong economic performance, and the need to upgrade the generally inadequate telecommunications infrastructure throughout the country. In 2003, the Russian market for telecommunication equipment sales reached \$1.9 billion. It grew 33% to \$3.3 billion in 2004.

Cellular communication services revenue reached \$10,4 billion in 2005, which was a 35% increase over 2004. The number of cellular subscribers reached 120 million in 2005. The penetration rate nationally grew up to 80%. The cellular communication market is

very concentrated, with 87% of total revenue belonging to three major national cellular operators: MobileTeleSystems (MTS), VypelCom and Megafon. The total revenue for fixed-line connection services increased by 25% from \$ 7.9 billion in 2004 to \$ 10.2 billion in 2005. The number of Internet subscribers reached 15 million in 2004 and grew 20% to 18 million in 2005. Total revenue for Internet services increased by 48% from \$780 million in 2004 to \$1.5 billion in 2005. In June 2003, the Ministry of Communications adopted a new federal communication law “O svyazi” (On Communications). The new law, with its many contradictions, is highly controversial. Due to a number of unclear clauses, the law has not functioned effectively since it was introduced. Experts claim the communication law will still not operate properly into 2006. Some of the burning issues are incomplete licensing procedures, a universal service tax, unequal rights for current market players, lack of transparency, and the more general need to change the Ministry of Communications from an active market player into a regulatory body.

The highest market growth is expected for VAS (value added services). Total revenue grew 60% and reached \$ 1.5 billion in 2005 in comparison to \$600 million in 2004. The most popular services are ring tones and logos (44%), media-projects (22%), information and entertainment (14%).

The Russian telecommunications equipment and services is not easy to enter. All telecommunications equipment to be connected to the public switch telephone network must be approved and certified for product compatibility and safety. Russia does not recognize foreign test data, so obtaining Russian approvals can prove to be a long and costly process.

Part 4—The Marketplace for Digital Equipment & Systems

As Russia’s market economy gains strength, a solid customer base is developing as an increasing number of large, well-financed and well-managed firms are in the market for more sophisticated computer systems. The focus on servers is on high performance equipment. IBM and Sun Microsystems sold a number of high performance servers to Russian companies in 2005.

Many major U.S. companies are already present in the Russian market; and their products are available either directly, or through representatives or distributors. Hewlett Packard continues to strengthen its position in Russia. Recently, HP opened new representative offices in Yekaterinburg, Novosibirsk and several other major Russian cities. In 2004, HP's turnover in Russia grew 22 percent (3 times more than HP's index worldwide). HP currently employs over 600 in Russia.

Moscow and St. Petersburg have been the most important computer markets to date. However, there are other large population centers in Russia's vast regions, which have been attracting the interest of suppliers and distributors. The longer-term opportunities for expansion in the regions are, under the right economic conditions, almost limitless.

Part 5—Future Prospects in this Market

Good opportunities and best immediate sales prospects for U.S. companies in the Russian IT market exist in the following market segments:

- . Hardware: computer peripherals, laptops, servers and Internet technology devices.
- . Software: database management systems including ERP systems as a result of growing interest in office automation, growth in the number of medium-scale businesses and rising number of individual end-users.
- . Services: project services including reengineering and training services. Project services are not susceptible to piracy and this segment is expected to be growing. Outsourcing IT services and software development.

Continued growth in the Russian telecommunications services market will yield business opportunities for competitive U.S. telecommunications equipment suppliers. The best sales prospects are digital switching equipment, high-speed, broadband Internet access technologies, multi-service and multimedia solutions, including SDH, xDSL, ISDN, DWDM, BWA, and call center equipment. Companies entering the market should be prepared to compete with major foreign equipment manufacturers and deal with a complex regulatory environment.

Part 6—Important USDOC Resources in this Market

For more information on FCS Moscow services and the Russian ICT market please visit our web site at: <http://www.buyusa.gov/russia/en/> or contact:

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Serbia

Capital: Belgrade Population: 6.5 million Languages: Serbian Money Unit: \$1/DIN70 GDP per capita: \$2,500 (estimated)

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Part 1- Market Overview

The ICT sector is probably the most dynamic component of Serbia's economy, and definitely one that is receiving priority attention from the government. Over the last five years, it has experienced impressive growth, offering Serbia the latest technologies in most branches of telecommunications. Although the ICT sector has a high annual growth rate of 18.3% and projected five-year compounded annual growth rate of 16.8%, its further development to reach the level of developed economies requires urgent improvement of regulatory environment. Expected changes in the regulatory and business environment in the next two years will bring greater than average value growth.

Telecom sector already contributes with around 2% to Serbian Gross Domestic Produce (GDP) and is growing fast. A cost – effective telecommunications infrastructure is an important driver for the rest of the economy, while the efficient management of government assets in the sector can provide revenue for the economy whilst the day-to-day running cost can be covered by the sector itself. It has an increasingly important social and economic effect putting geographically separated people in contact, and offering new opportunities in which to conduct business.

Huge investment has been carried out in this sector for the last four years exceeding USD 1.5 billion. The Government has discussed the possibility of a third GSM provider soon.

U.S. suppliers should monitor developments in mobile communications for future sales opportunities.

Mobtel and Mobile Telephony of Serbia (MTS) are sharing mobile market in Serbia. They are strongly competing in the introduction of new technology and new high-profit value added services. Significant opportunities for US companies in this sector are related to the possibility to introduce third operator of mobile telephony in Serbia, which could be regional interest, since Serbia is the biggest market among former Yugoslav republics. Privatization of the telecom sector leads to the development and modernization of equipment.

Rapidly growing cable television sector also provides opportunities for investment, particularly cash-starved “KDS”. There are also telecommunications equipment manufacturers with innovative solutions for the particular problems of undeveloped countries: low-cost solution for line doubles (party lines); low cost small scale digital exchanges; home grown ADSL solutions, etc.

Mostly European companies are present in this sector (Siemens, Alcatel, Ericson), while there is enough space for US products presence.

Part 2 - The Marketplace for Business Process Technology

Transparent market for computer software is slowly positioning in Serbia. Almost all major software manufacturers have a presence in Serbia (i.e. Microsoft, IBM, SAP, Oracle, etc). Local system integrators offer a broad scope of IT related services, which indirectly generates an increase in demand for computer software for industrial and business needs.

It is hard to measure a size of the computer software market in Serbia, since it is a subject of the shadow economy and piracy. Some independent experts estimated Serbian software market at US\$200 million in 2004, with the growing annual rate of 30%. Local software manufacturers are quite successful, but their business is a small scale. Imported software is dominant for the office software market, software solutions for the government (e.g. for Tax Revenue Administration), for the business and industry, as well.

Windows and Microsoft Office programs are currently the most widely used office software in Serbia.

Serbia became a low cost site for high quality software development. Microsoft opened a Development Center in Belgrade during 2005, its fifth of this type in the world, to continue expanding language support for handwriting recognizers within Microsoft Tablet PC technology and develop recognizers for the languages of Central and Eastern Europe (CEE). Industry experts believe that computer software development, software services, embedded systems, technology licensing, etc. could be one of driving force for the economic growth of Serbia, with the government's clear intention to provide the environment for this development.

U.S. companies hold a significant share of the Serbian market. This position and positive trends should remain in the following years.

Part 3 - The Marketplace for Communications Technology

The sluggish development of the telecommunications sector is often associated with the past decade of instability the country suffered through. UN sanctions and problems involving Telecom Serbia. Partial privatization of this company was completed during the Milosevic's era when the prices of telecom services were controlled by his government. Telecom Serbia did not have business interests to invest in a fixed telephony infrastructure and reduced revenue due to the low cost of telephone services. Instead, introduced was a new range of profitable services such as mobile telephony. Since 1996 Telecom Serbia has been the single provider of many services required by businesses and government institutions - leased lines, ISDN etc. Its monopolistic position and economy control until 2001 increased the costs of these services limiting the number of users, as well as the development of the company.

"Telekom Srbija"

The Serbian company "Telekom Srbija" a.d. is a joint stock telecommunications company. Since June 1997, 49% of this company was owned by Italian STET (29%) and Greek OTE (20%). Public Enterprise PTT Traffic "Srbija", the Republic of Serbia as its

founder, retained 51% of the ownership of Telekom Srbija and the right to veto on all important strategic decisions made by the Managing Board. In July 2003 PTT “Srbija” negotiating with Italian STET and purchased 295 of their shares in “Telecom Serbia” by which it became an owner of 80% of the shares.

Business activities of “Telecom Serbia” a.d. include:

- All types of fixed telecommunications services within and outside the borders of the Republic of Serbia;
- Other fixed voice services;
- Data transmission, telematic services, value added services, ISDN, intelligent network, fixed satellite services, fixed services for using DECT standards, Internet, multimedia;
- Mobile telephony (Mobilna Telefonija Srbije MTS)
- Other activities (planning, design, construction, maintenance, repairs etc.)

Telecom Serbia directly employs over 12.500 people. Following the changes in 2000, the new management of Telecom Serbia has expedited the infrastructure development and telephone network digitalization throughout the country. The major part of the profit invested so far has been intended for the development of fixed telephony.

Starting from 2000 digitalization levels of around 30%, Telecom Serbia has brought up digital capacity to 88.5%, while in 2006 all two-party lines (duplexes) are expected to be separated. By the end of 2007 the network should be fully digitalized.

As of 2001 Telekom Serbia has invested about \$ 950 million euros. Of total investment over the period, 300 million was invested in the development of fixed network, which is a prerequisite for the development of good-quality Internet services. It is expected total investment to exceed 1 billion by the end of 2005.

Telecom Serbia has launched the yellow pages project, which will be issued in both printed and electronic form (website). This will enable companies, especially SMEs, to market their products and services both in the country and abroad.

Mobile Telephony in Serbia

Mobile telephone services in Serbia have developed rapidly in the past five years. The number of mobile telephone subscribers currently increases at the annual rate of 40% and at the end of 2005 records exceeded 4 million subscribers (prepaid and postpaid). Now, there are at least 398.47 mobile telephone subscribers per 1000 people. The GSM system in Serbia was introduced in 1997.

Despite the expensive subscription fees and call costs for subscribers (more costly than in EU countries), the networks are spreading very fast. One of the reasons for the fast development of mobile telephony is that it enables people without access to fixed lines to access telephone services. There are also indicators that aggressive development of mobile telephony was in the interest of the former regime, since the former government controlled Telecom Serbia. Mobile telephony was a source of immense profit, developed and managed by private companies whose owners were privileged / associated to Milosevic's establishment. It is expected that the liberalization of the telecom sector will advance these services, introduce more established and competitive international players, and significantly reduce the costs for users. Currently however, mobile providers are reducing rates only for new subscribers.

During the Milosevic's era the private BK Group (Moscow and Belgrade based) formed a company with PTT Serbia (State owned) named BK Telecom, who was awarded the first and exclusive license to operate a mobile telephone network in Serbia. Mobtel (cellular company --063 mobile numbers) is owned 49% by PTT and 51% by BK group). In 1997 another license was granted to Telecom Serbia (cellular company --064 mobile numbers), to increase the value of his shares that were to be sold to Italian and Greek Telcos. BK obtained as a reparation a percentage of the annual income PTT gets from its stake in TS.

The owner of Mobtel announced mid May 2005 that he has sold his BK Trading company and its majority share in Serbia's largest mobile telephone operator to an Austrian consortium, the Schlaff Group. Serbia's government disputed the announcement, saying 58 percent of Mobtel Serbia is owned by the state-run PTT Serbia and that tycoon Boguljub Karic could not have sold a majority share in the company without a public bid. Details of this deal were not published, it was estimated that the entire Mobtel Serbia is

worth between 800 million euros (\$1.01 billion) and 1 billion euros (\$1.26 billion). Both Serbia and Karic have filed for an international arbitration by a court in Zurich, Switzerland, to determine who has a majority stake in Mobtel Serbia.

Internet

Internet services are very important sub-sector of the SAM's telecom industry. During 2000, Serbia had 8 major ISPs and more than 40 local ISP subcontractors. Roughly 8000 telephone lines (nodes) are distributed among them for dial-up connections. The number increases literally on a daily basis and cannot satisfy the rising connectivity demand. Several major ISPs have a standard of establishing the connection with less than 3 tries, except during peak hours. Subscribers have some options between various Internet Service Packages. Furthermore, there are hundreds of Internet Café establishments, offering Internet access for approximately 0.5 US\$ an hour. Public libraries recently introduced the Internet and supply their members free of charge. However, geographic distribution of internet users is uneven. Belgrade, the capital city accounts for 60% of the internet customer base. There were around one million internet users in Serbia and Montenegro in 2005, which is an increase of 50% compared to 2000. In addition, there were around 10,000 web sites registered in SAM. However, they are not well maintained and updated.

Internet access is considered to be affordable to the majority of population. Although the average salary equals the three-month flat rate subscription fee, moderate usage of the Internet by computer literates is quite inexpensive. Adding up the numbers of dial-up connection users at home, and those in cafes, at work and schools, the result is around 20,000 people on-line at any time of the day, which accounts for 0.3% of population. Since only urban areas have access to the Internet, almost 0.8% of the urban population in Serbia are on-line at any given time during a day. The number drastically falls at night.

Cable Services

There are two major Cable Television Service providers in Serbia: KDS, owned by government Postal Service (PTT) and SBB, privately owned company with foreign

equity. Both companies are introducing digital two-way systems with interactive programming and Internet services. SBB also offers fixed line telephony service for internal communication amongst its subscribers with ambition to become public fixed line telephony operator after the monopoly of Telekom Serbia is lifted. There are a number of other smaller operators, mostly unlicensed, which tend to go out of business sooner or later or are purchased by one of the two major operators

Total number of subscribers in 2005 reached 500,000 with estimated annual revenue of €22 million. Market research conducted by the Ministry of Capital Investment predicts growth of cable subscribers by 30% in 2006 and 20% in 2007 to reach 1.2 million subscribers. Revenue is expected to increase by 50% in 2006 and 35% in 2007. Planned investments in infrastructure by the two major operators are €175 million

The public enterprise PTT, through its independent KDS sector, is presently introducing and planning cable distribution systems throughout the entire territory of Serbia. Their fiberoptic coaxial network will also provide Internet access and other services such as home banking, VOD, entertainment as well as others. In its 3-year project KDS will respect all legal, technical and technological standards. The new Telecommunications Act will affect those private cable providers operating without appropriate authorization. Most likely, they will sell their businesses to a number of licensed companies (such as Kablprojekt, Telefonkabl and others).

Privatization and Liberalization

PTT Serbia is the monopolistic owner / operator of Serbia's telecom network. The period of monopoly stipulated in the contractual arrangement with OTE/STET expired June 2005, which was an immense obstacle for the liberalization and deregulatory efforts of the telecom sector in Serbia. Privatization of the Telekom Srbija is expected to occur in the next two years. Serbian Government has recently tendered for international consultant to help creating strategy of privatization and prescribe conditions for future privatization tender.

Presently, there is virtually no regulatory oversight of the telecom sector. Newly established regulatory body started with its work late-2005 but has not yet started a

process of deregulation. They have little expertise or authority to challenge either PTT Serbia or Telecom Serbia.

Serbia's telecom law, adopted in May 2003, has drawn a bit of criticism. The Law, when enacted, would establish statutorily for the first time the monopoly period stipulated in the contract (expiring 2005). Some other concerns relate to: proper regulation of anti-competitive behavior, excessive flexibility in regulatory body's licensing procedures for services such as the internet, data transmission, cable and other value added services.

US Government through TDA approved assistance to the Serbian Ministry of Capital Investment in establishing the telecom regulatory agency. Main activities will be in drafting bylaws related to: general authorizations, licenses for the use of numbering resources, licenses for the use of frequencies, type approvals, tariff and non-tariff barriers, etc. This job is expected to be completed by the end of 2005.

Part 4 - The Marketplace for Digital Equipment & Systems

The emerging and still immature PC market of Serbia offers great growth potential in the long term. Businesses and the public administration will continue to improve their basic infrastructure as their IT requirements increase, and households will seek Internet access. Driving the IT market will be the restructuring and modernization of the economy, together with privatization, foreign aid, and the inflow of FDI. In addition to general political and economy developments, the future of the IT market depends on the government's ability to catalyze IT sector growth and become a major IT user and buyer.

Despite slow economic development and an unstable political situation, the IT market in Serbia in 2003 grew 23.2% year-on-year to \$316.48 million. Such a trend continued in 2004 with a growth rate of 20.5% and reached \$381.23 million. According to the IDC Study, over the period 2004-2008, the market should expand at a compound annual growth rate of 15.6%. Packaged software will represent the most dynamic segment of the market, increasing by 24.9% through 2008. IT services will exhibit a CAGR of 15.8%, and hardware of 13.5%, due in part to falling prices.

The low purchasing power of the population has been the biggest constraint to rapid growth of the PC market in Serbia. The key market driver in 2003 and 2004 was the

government's decision, to eliminate the tax on the purchase of new PCs (as well as on selected lower-end PC components). The price declines that followed the decision fostered new demand among home users.

In 2004 and 2005, international brand name vendors present in Serbia and Montenegro together shipped more than 40,000 personal computers, to control approximately 25% of market volume. In addition to Dell and HP, successful brands included IBM, Fujitsu-Siemens, and Toshiba. Local assemblers dominated the market in terms of revenue, together accounting for some two-thirds of total market value.

Microsoft Windows was the most popular operation systems in Serbia and Montenegro over the period of five years, accounting for 96.8% of total PC shipments. In 2004, around 20% of new PC units delivered in the union did not have any operation system installed, confirming that high level of piracy still exist in Serbia. Linux was sold on only 3.0% of new PCs shipped in 2004, while all other operation systems accounted for a negligible portion of the total market.

International vendors need to consider the possibility of developing a local presence in Serbia and Montenegro. At the moment, due to the relatively small size, the market is dominated by relatively small local companies, assemblers, and value added resellers. Vendors will require on-the-ground expertise to understand the unique characteristics of this developing market. Local vendors should prepare and be ready to adjust to new market conditions as new competitors enter the market.

Part 5 - Future Prospects in this Market

Mostly European companies are present in this sector, while there is enough space for US products presence.

The best market prospects are for Internet-related equipment such as routers, switches, access servers, equipment for mobile telephony, cable operators' equipment for transmission and fixed wireless equipment. There are also lucrative business opportunities for U.S. companies with technical skill and expertise in Internet applications. In particular,

as GPRS usage becomes widespread and UMTS cellular telephony is introduced, there will be good prospects for the business-to-consumer market for publishing via internet.

Clear opportunities exist for U.S. firms as equipment providers or subcontractors for ICT solutions on behalf of major multinational oil firms active in Serbia, which with financial support of international financial multipliers tend to computerize their outdated communication networks. Procurement of telecommunication equipment is usually conducted based on tender procedure with representatives of international financial multipliers that finance the project monitoring selection process. U.S. companies are advised to check for the latest tender announcements at

<http://www.buyusa.gov/yugoslavia/en/>, the U.S. Government's primary market information center for U.S. companies exploring business opportunities in Serbia.

Three other major factors contributing to market growth are the continued increase in Internet users, the substantial increase in mobile phone use, and the increase of services offered by the cable TV operators, private radio stations and TV broadcasting operators. These factors should help create expanded demand for U.S. providers of advanced telephone service solutions, as well as value-added telecommunications services. Other best prospect subsectors include Internet services, wireless and broadband Internet access technologies, cable television, and voice-over-Internet.

It was recently announced that the tender for a third operator of mobile telephony could be announced late-2006, which could be another opportunity for U.S. companies interested in investing and doing business in Serbia.

End Users and Market Entry

The use of agents and distributors is an important method for US companies to enter the Serbian market. Many American firms have found that it is more efficient and cheaper to hire a good local agent or distributor than to conduct direct sales.

Due to a tight credit policy by banks, the ability to provide financing is a key factor in selling both industrial and consumer goods. Most Serbian buyers prefer to pay monthly installments, even for low-cost goods Sales techniques critical to success include: close

and frequent contact with buyers, motivated and trained middlemen, and aggressive market promotion. Most large importers currently have more opportunities and access to credit lines, which was not the case in the previous ten-year period, when they were forced to pay in advance.

Selling to state-owned companies and other state entities depends on establishing your company or product creditability. Internationally financed public procurements offer the best opportunity for transparent purchasing decisions.

Serbia's private sector should be targeted. Private sector growth augers well for western businesses that are accustomed to selling products based on pricing, product quality and servicing ability. The government states that the private sector accounts for more than 50 percent of GDP. Marketing techniques will not vary greatly with this business segment.

Slovak Republic

Capital: Bratislava Population: 5.4 million Languages: Slovak Monetary Unit: Slovakia Koruny Exchange Rate: 31.3529 SKK GDP per Capita (in US\$): \$ 5,843

Local Market Commercial Specialist

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Part 1—Market Overview

The total size of the Slovak ICT market was USD 2,675 million in 2003. The ICT market is expected to increase by 5 % in 2004. In 2003, computer hardware sales represented USD 417 million, software was USD 278 million, office equipment was USD 39 million, datacom and network equipment was USD 332 million, and IT services were USD 175 million.

U.S. companies represent approximately 42% of the total hardware market, while Germany represents 11%, and local production represents approximately 14% of the market.

The development of Slovakia's ICT services market reflects spending from the banking, financial service institutions and public sector. Growth from the implementation,

networking, hardware and software maintenance continues with the main end-users of hardware equipment coming from the financial sectors such as banks, insurance companies, government ministries, and the parliament and state administrations. Local industries such as the car producers, engineering companies, energy production and distribution companies are also contributing. Growth in the ICP Sector also continues with distribution networks, retail chains and food markets, telecommunications and data transmission service providers.

Locally, many companies are resisting change, and are not investing in modern solutions, and customer service is not a part of the business development plans for most Slovakian companies. Nevertheless, the Slovakian software market continues to expand its share of overall ICT spending, and this trend is expected to continue.

The high demand for ICT services also explains the growing complexity of ICT solutions, and the popularity of packaged applications such as ERP, user investment in networking, communications, and the increasing importance of the Internet, e-commerce and rising FDI inflows.

There are no tariff barriers for importing computers and peripherals, but tariff rates for ICT equipment is from 0.9% to 4.3%. All products, regardless of origin, are subject to a 19% value added tax (VAT).

Part 2—The Marketplace for Business Process Technology

While the Slovak ICT market is hardware-oriented, demand for software services has risen since 2002. The hardware market is currently saturated, particularly in key sectors. A number of local firms are making the transition to more value-added services, such as networking and solution development. In 2003, software sales represented USD 136 million. The biggest local software companies are Asset Soft, PosAm, Novitech and Logica Slovakia. The leading company is France's Alcatel.

Growth from implementation and software maintenance continues with the main end-users of hardware equipment coming from the financial sectors such as banks, insurance companies, government ministries, and from parliament and state administrations. Local industries such as automotive producers, engineering companies, energy production and distribution companies are important software services users. Growth continues with distribution networks, retail chains and food markets, alternate telecommunications and data transmission service providers.

Many Slovak companies are resisting change and aren't investing in modern solutions. Customer service is not included in business development plans for a many Slovak companies. Nevertheless, the Slovak software market continues to increase its share of the overall ICT spending.

Part 3—The Marketplace for Communications Technology

In 1998, the Slovak government liberalized all telecommunication services except the public voice monopoly which was not liberalized until December 31, 2002.

Slovak Telecom (ST) www.telecom.sk is the major provider of hard line telecommunications services in the Slovak Republic. ST owns and operates a nationwide telecommunications network, and provides local, national and international telephone services, leased line services, data network services, telex and telegraph services, distribution and broadcasting of radio and television signals and other telecommunication services.

Pursuant to the Slovak government resolution of July 2000, the strategic investor Deutsche Telecom acquired 51 % stake in ST. Besides professional managerial and technical know-how enabling increase of performance in competitive environment, the strategic partner also provides access to global information markets.

Since 1997, open competition helped the mobile phone sector become the most dynamic growth sector in the Slovak telecommunications market.

There are two GSM 1800 MHz cellular operators, Eurotel a.s. www.eurotel.sk and Orange a.s. www.orange.sk. Slovak Telecom owns 60 percent of Eurotel a.s. with the remaining 40 percent is owned by Atlantic West B.V. Orange a.s. has a more diverse ownership with 64 percent held by France Telecom Mobiles International and the remaining portion held by six Slovak enterprises and the European Bank for Reconstruction and Development (EBRD.)

In 2003, Eurotel a.s. provided services to 1,298,462 clients and Orange a.s. served 1,713,370 clients. In June of 2004, Slovak cellular networks reached around 73.38 percent, roughly 3,947,858 users. The total estimated turnover for the mobile telecommunications market was \$ 866.6 million in 2003 and the industry predicts that this figure will double in two years.

Part 4—The Marketplace for Digital Equipment & Systems

A number of local firms are already making the transition to more value-added services, such as networking and solution development. U.S. companies represent approximately 40 percent of the total hardware market, Germany represents 15 percent, and local production represents approximately 10 percent of the market. The key US companies are IBM, HP/Compaq, DELL and Apple.

There is growing demand for portable computers, handheld and PDAs. U.S. companies have been successful in exporting telecommunications equipment such as ATMs, routers, bridges, PABXs, structured capacity cable systems, encryption technologies for data and voice transmission, ISDN cards, data Multiplexors, mobile phones and equipment for satellite communication.

The development of Slovakia's Hardware market reflects spending from the banking, financial service institutions and public sector. Growth from the implementation, networking and hardware maintenance continues with the main end-users of hardware equipment coming from the financial sectors such as banks, insurance companies,

government ministries, and from Parliament and state administrations. Local industries such as automotive producers, engineering companies, energy production and distribution companies are also contributing to the growth.

In 1998, ON Semiconductor, formerly a division of Motorola, bought the state owned company Tesla Piestany, and established a new company that produces semiconductors and currently employs 700 workers.

The largest company currently assembling computers in Slovakia is a French/Slovak company registered by the name Bull, while Sony-Slovakia produces and assembles monitors.

Part 5—Future Prospects in this Market

The best prospects in Business Process Technology are System and application software, Customized software, Client-oriented multi-currency banking information system, Software for electronic distribution channels providing all basic retail functions, Complex information system for card services, Decision-supporting information systems, Information system for management staff and Complex information system for insurance companies.

The best prospects in Communication Technology are Wireless Application Protocol (WAP) services, and implementation and supply of General Packet Radio Service (GPRS) followed by EDGE technology. The Slovak Government has sold three Universal Mobile Telephone Service (UMTS) that will significantly increase the range of mobile communication services. (In some countries, UMTS is known as International Mobile Services, or IMS 2000.) High Speed Internet Access is already a reality in certain regions of Slovakia. The main telecommunication operator ST and eight alternate operators launched DSL service on June 2003, and offers high-speed services through the Asymmetric Digital Subscriber Line (ADSL). U.S. companies have already succeeded in the market with mobile services, and we feel there is still potential in these services such

as pre-paid cards or wi-fi services. We also feel there are opportunities for alternate hard line operators and other new services such as call centers, homework services, and tele-education and distance learning services. For more information please contact Marian Volent.

The best prospects in Digital Equipment & Systems are Server systems, Work stations and personal computers, NT and UNIX servers, Data communications equipment, Packet switching & routing equipment , PBX, Key systems and circuit switching equipment , Data com and network equipment , System and application software, Switched data and leased line services, Cable TV services, and presentation technology

Spain

Capital: Madrid

Population: 44.1 Million

Languages: Spanish. Certain regions in Spain have a second official language: Catalan in Catalonia and the Balearic Islands; Valenciano in Valencia; Galician in Galicia; and Basque in the Basque Country

Monetary Unit: Euro

Exchange Rate: 0.82

GDP per Capita (in US\$): \$ 22,421

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Part 1—Market Overview

(General trends, role of the government and key market forces/conditions)

Spain is a member of the European Union (EU) and remains the fastest growing of the EU's larger economies. Spain's GDP grew 3.4 percent in 2005. Growth was spurred by construction and consumer demand. The Spanish Government estimates growth for 2006 at 3.3 percent. The 2005 inflation rate of 3.4 percent and unemployment of 8.5 percent continue to be higher than the EU average.

As with other industrialized countries, services are the main contributor to Spain's GDP, followed by industry. These two sectors represent almost 90 percent of the country's GDP. Services account for over 60 percent of GDP and employ 55 percent of the labor force.

Upgrades in infrastructure (transportation, environment, telecommunications) are necessary to help develop and modernize Spain, particularly in rural regions, in relation to the rest of the EU. Future development will focus on the continued improvement of the highway system, and modernization of airports, railroads and ports.

Major U.S. exports to Spain have traditionally included aircraft and associated parts and equipment, telecommunication equipment, medical products and equipment, franchising, electric power systems, computer software, and pollution control and water resources equipment. Other sectors offering good prospects include security equipment, e-commerce, business services; travel and tourism; chemicals; computer equipment, software and services; architecture, construction and engineering services; defense, transportation and industrial machinery.

U.S. exporters continue to face competition from European Union (EU) countries as well as from China and Japan. U.S. products are considered technologically advanced and of the highest quality. EU firms, however, offer excellent financial support, after-sales service, and customization of products to fit local market needs.

The Spanish government has eased regulations and increased incentives in an effort to attract foreign firms and investments. Except in a few cases, Spanish law permits foreign investment of up to 100 percent of equity. In some sectors, however, disincentives such as high labor costs, inflexible labor laws, and concern for intellectual property rights still exist. Although structural reform packages aimed at rectifying these problems were passed in both 1996 and 1997, reform is far from complete. Despite a drop in investment levels, the U.S. continues to rank among the top ten-investor nations in Spain.

Part 2—The Marketplace for Business Process Technology

(Enterprise Applications, Systems Software, Document Management, Security and Services)

The total market in Spain for Information Technology (IT) including hardware, software and services, represents 5 percent of the total European market and nearly 2 percent of Spanish GDP. The Spanish IT market accounted for USD 14.2 billion in 2004 and is expected to reach USD 15 billion in 2005. After moderate growth in the overall IT sector in 2002 and 2003, projected levels for 2004 and 2005 again show positive growth trends (2.7 percent and 4.9 percent respectively). The Spanish IT industry maintains its strength and presents significant opportunities for U.S. companies.

The Spanish computer software market accounts for 19 percent of the Spanish IT market; this segment was valued at USD 2.7 billion in 2004, an increase of 5.3 percent over 2003. Growth is expected to continue in 2005, with a projected increase of 6.1 percent over 2004. Systems software represents 54 percent of the Spanish IT market while applications software accounts for the remaining 46 percent. The software segment of IT offers opportunities for U.S. firms, particularly for those specializing in software for business integration and communications. Prospects for systems software are found in software for databases, while prospects for applications software are found in multimedia and vertical applications. Spain has a relatively high level of software piracy, although enforcement is improving.

Official statistics indicate that 80 percent of IT products and services come from other European countries, and only 7 percent from the U.S. Although most imports in the IT sector are of hardware, imported software represents 48 percent of total software sold in Spain. The software imported from the U.S. enters Spain through two different sources, either directly from the U.S., or through the European subsidiary of the U.S. firm.

Computer services represent 37 percent of the total IT market in Spain. The computer services industry in Spain is expected to grow 9 percent in 2005. This large increase results mainly from increased sales of operations management (9.1 percent growth) and consulting services (6.2 percent).

Although the IT services market offers good potential, local firms or foreign subsidiaries in the local marketplace provide most of the services. Industry estimates indicate that foreign firms (imports of services) directly provided only 7 percent of IT services.

Imported IT services accounted for 504 million USD in 2005, and the value of imports from the U.S. for that year were about USD 110 million. However, these figures do not include total IT services provided in Spain by U.S. firms. Some of the top local suppliers of IT services are U.S. subsidiaries and some other U.S. service providers operating in the Spanish market may be offering their services through local firms.

Best opportunities are found in the business/industry segment, primarily in software business applications, database software and sectorial packages. In the household market, there is also good potential for software associated with increased use of Internet and multimedia PCs.

Areas with potential for US firms in the services sector include consulting, custom software, and outsourcing. U.S. companies already in related markets such as hardware or software can take advantage of their strong presence, name recognition and sales forces to enter the Computer Services sector. U.S. firms can bring their experience and

technological knowledge in consulting and software maintenance, segments with a high added value.

Part 3—The Marketplace for Communications Technology

(Telecommunications fixed & mobile, Internet Service, WAN & LAN Technology, Broadcast)

Telecommunication services have been undergoing a process of consolidation that will probably continue in the near future. Investment, especially in fixed networks, has diminished, and companies are focusing on their core business. Wireless networks, Broadband access and VoIP will stimulate growth in the market.

Telefonica will continue to be the dominant player in most market niches, but there will be increased pressure on the company to provide breathing space to other carriers. An overview of the different sub sectors shows a general trend towards structural changes in the industry:

In fixed networks, Telefonica is the dominant player, but competitors have been able to achieve a 21 percent of market-share. Uni2 is the runner-up. There is only one major cable company left in the market, the Ono Group, after purchasing the cable interests of Auna Group. Investment in fixed networks has been reduced significantly. There are close to 18 million lines in service.

Three companies control the Spanish mobile market. GSM, GPRS and UMTS services are available. The major cellular operator in Spain is Telefonica, with over 46 percent of the market, followed by Vodafone and Amena (recently bought by France Telecom). The three operators combined have 40 million users. Three factors are to be considered in the Spanish market: the high number of prepaid clients, the importance of messaging, with over 12,000 million SMS sent in 2004, and finally the reluctance by city officials to

allow the deployment of new antenna sites, due to health concerns, which could become a serious drawback to network development plans and the quality of services.

The leading trend in the Spanish Broadcasting market has been the consolidation of large media groups (for example, a single Digital Satellite TV operator is left in the market), and preparations for the mandatory switch to Terrestrial Digital Television.

As opportunities for 2006, the Spanish Government's drive to regulate the upcoming digital broadcasting market (radio and TV) is opening new license opportunities for broadcasters, especially at the regional and local level.

Total investment on **telecommunications equipment** by Spanish service providers during 2005 is estimated at USD 5.9 billion. Investment has been decreasing across the board since 2001, and only recently seems to have stabilized.

Although U.S. products have a strong reputation, there is stiff competition from European and Asian companies, most notably France, Germany, Italy, the U.K., Scandinavia, Japan, Korea and China.

There are some areas that have maintained an acceptable level of demand and that are expected to continue in the future, such as mobile telephony, where operators have continued their investments in network infrastructures for UMTS deployment. In 2005 they are considered to have invested over USD 2 billion. In addition, demand for new terminals or solutions offering mobility to the business environment will maintain growth.

Broadband services, mainly focused on XDSL and cable, will continue to demand equipment and solutions, as competition heats up between the major players. Over 3.1 million clients are currently connected to ADSL services in Spain, with an additional 1.6 million connected to Internet through cable companies.

Wi-Fi/WiMax equipment is expected to see growing demand. In the case of broadcast equipment, investment should pick up for the next few years due to the mandatory switch to digital technology.

All equipment must be CE marked and, in some cases, certified in Spain if it is to be connected to the Public Switching Network or if it uses the electromagnetic spectrum for transmission. Teaming with a Spanish counterpart should be considered as one option to develop better a market access strategy and product support.

During 2005, the **e-commerce** sector made good progress in Spain, both in the B2C and B2B areas. The sector offers opportunities to U.S. companies, with strong expectations of continued market growth, fueled by increased penetration of Broadband Internet in Spain.

The B2C market is estimated to have reached a sales volume of USD 2.7 billion in 2005, with excellent expectations for 2006. It is estimated that Spanish consumers purchased approximately \$110 million from U.S.-based websites in 2005. The top product categories for online purchases by consumers were travel-related tickets (30 percent), electronic products (14 percent), and books (12.7 percent). Regarding payment preferences, credit cards were used in almost two thirds of the transactions (65.4 percent), followed by payment upon receipt of goods.

Regarding B2B, while Spanish companies are maintaining investments made to date in proprietary B2B solutions, with major companies prodding their suppliers to join, little additional investment is being made. On the other hand, vertical marketplaces are not delivering results as expected. Over 41 percent of the companies with more than 250 employees have B2B activity, but the real opportunity is with the SME market, a segment that is becoming more and more interested in opportunities offered by e-commerce.

In B2C, there are opportunities in 2006 for tourism-related products, e-learning, music and software purchases. In B2B, opportunities exist for E-commerce software solutions for SME's, and areas like web-based CRM.

Part 4—The Marketplace for Digital Equipment & Systems

(Computers, Peripherals & Components, Storage Systems & Equipment, Office Automation, Digital Entertainment, Digital Photography & Imaging, Home Electronics)

The Spanish hardware market is estimated to have reached USD 4.9 billion in 2005, a 5.6 percent increase over 2004. Computer hardware represents 35 percent of the IT market in Spain. Of the total hardware market, microcomputers (PCs - laptops and desktops) account for 59 percent of the market, server systems represent 22 percent, printing systems represent 15 percent, and other peripherals the remaining 4 percent.

Although the leaders of the market are U.S. firms (HP, Dell and IBM), 25 percent of the computers installed in Spain are locally assembled clones. Sixty two percent of the hardware market is imported. Although official statistics indicate that 79 percent of IT products come from other European countries and only a low percentage come from the U.S., much of the imported computer hardware is either sourced from the U.S. or manufactured locally by U.S. subsidiaries. The U.S. is the source of 20 percent of total imports of computers and peripherals.

Computer sub-sectors

PCs:

Desktop computer sales increased 9.7 % to 1,696,473 units in 2004. In this subsector, which represents 59 % of the overall PC market in Spain, 10 firms share 66 % of total sales. Industry experts see sales of “Media Centers” for households as key for the growth in this segment in the near future.

Laptop sales increased 43 % in 2004 to 1,197,734 units. Lower prices and increasing demand from small businesses and private households due to new wireless and mobility applications are keys to the success of this segment, which already represents 41 % of new sales in the Spanish PC market.

Servers:

Servers experienced growth of 16.6 % in the last quarter of 2004, down from a 32.6 % increase in the second quarter of the same year. Unit sales for the last quarter were 21,972. In this segment three firms have 86.4 % of sales.

Market leaders

Hewlett Packard (HP) remains the overall market leader in Spain with a 19.5 % share, while Acer and Dell hold 14.8 % and 7.6 % respectively.

However, Acer now holds 31.2 % of the laptop market in Spain, with sales of 373,103 units in 2004, an extraordinary 77 % increase over 2003. HP, which led the sub sector previously, has fallen to a 16.5% market share, despite a 26.8 % increase. The top five manufacturers also include Toshiba, with 11.8 % of the laptop sub sector in Spain, Airis (a local supplier) with 8.1 % and Dell with 4.5 %. These top five firms alone accounted for 72.1 % of all laptops sold in Spain during 2004.

HP accounted for 49.1 % of server sales, while IBM and Dell had 19.5 % and 17.8 % respectively.

Best prospects are found in servers, portable and wireless equipment for SMEs, peripherals for mobile applications and new appliances for wireless LANs. The home sector is also expected to experience large growth thanks to new Internet and wireless applications, media centers, and multimedia PCs and peripherals. Mobility, wireless and media centers are major forces in the development of the IT industry in Spain.

The Spanish market for consumer electronics and home use audiovisual equipment is experiencing increasing demand, especially for high-end products (plasma and LCD screens, home cinema), which have recently experienced significant price reductions. The sector is especially influenced by three main factors:

1. The process of technological convergence: convergence with IT applications has brought new players, diversification and lower prices.
2. Moving manufacturing plants to Eastern Europe and Asia, especially to China.
3. Implementation of the new digital TV and radio.

In this context, the Spanish market for consumer electronics was valued at 3,241 Million Euros (\$ 4 billion) in 2004, a 15 % increase over 2003. Some key products are the driving force behind this increasing market demand: MP3 players, flat screen TV sets (plasma and LCD), digital cameras and home cinema systems.

Part 5—Future Prospects in this Market

In the Telecom sector, the demand growth will be focused on software and solutions that provide content to broadband services for customers, as well as wireless enabled devices both for businesses and consumers. Wi-Fi/WiMax equipment is expected to experience growing demand. Other growth areas are TV over ADSL and electronic gaming over mobile.

As well, the Spanish Government's drive to develop the digital broadcasting market (radio and TV) is opening new license opportunities for broadcasters, especially at the regional and local levels.

The market for computer products and services continues to grow in Spain primarily due to the increasing home and business penetration of Internet throughout Spain and the need for upgrades and customization of professional equipment, software and services. Although Spain now lags behind the rest of Europe and the U.S. in Internet penetration, growth figures indicate that the gap will close in the near future.

Business opportunities are found in the areas of computer services and software applications related to general Internet use and increased e-commerce and digital

services. Areas with potential for American firms include consulting, custom software and outsourcing.

Additionally, Mobility and Wi-Fi/WiMax equipment are expected to see growing demand, and media centers are major forces in the development of the IT industry in Spain. The Spanish market for notebooks, laptops and wireless peripherals is experiencing tremendous growth. The success of wireless connections and their peripherals is the next logical step towards the expansion of mobility.

From August 2005, companies selling a broad range of electrical goods in Europe will need to conform to WEEE (Waste Electrical and Electronic Equipment Directive) and as of July 2006, those same companies will also need to conform to RoHS (Restriction of Use of certain Hazardous Substances Directive). Specific information on the WEEE and RoHS legislation is available at the U.S. Commercial Service's European Union and Spain's websites:

www.buyusa.gov/europeanunion/weee.html and <http://www.buyusa.gov/spain/en/67.html>

Part 6—Important USDOC Resources in this Market

Trade events: SIMO is the largest ICT Show in Spain, and offers an excellent opportunity for U.S. firms to assess the market and identify potential partners and competitors.

www.simo.ifema.es

Spanish ICT Association: www.aetic.es

Data Protection Agency: www.agpd.es

Commercial Service Spain: www.buyuysa.gov/spain

Further information on the ICT sector in Spain can also be obtained from:

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Sweden

Capital: Stockholm Population: Nine million Language: Swedish Monetary Unit: Kronor Exchange Rate: 7.76118 SEK GDP Per Capita: USD 38,800

Local Market Commercial Specialist

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1. Market Overview

Sweden is the fourth largest country in Europe, with only nine million inhabitants. Like other small nations, Sweden is highly dependent on international trade to maintain its high productivity and high living standard. Its economy is very diversified with traditional industries still playing an important role, but with an increasingly important high technology sector. Sweden is in the forefront in terms of wireless communications, software development, microelectronics, telematics and photonics.

The Swedish IT market consists of around 17,000 companies and employs around 245,000 people, representing 6% of the total number of employed persons in Sweden. The country has adopted the EU resolution on implementing the eEurope Action Plan with a view to promoting development toward an information society for all. The action plan includes e-government, e-learning services, e-health services, a dynamic e-business

environment, widespread availability of broadband access at competitive prices and as well a secure information structure. The Swedish government has allocated USD 73 million for investment in broadband infrastructure and is giving high priority to a more secure Internet.

In 2003, the government appointed an IT Policy Strategy Group. The role of this Group is to be proactive regarding the Swedish government's efforts to achieve its policy goals. Another role will be to strive to maintain, in collaboration with other players in the community, Sweden's leading international position at the forefront of IT development. Sweden was ranked number three in terms of e-readiness in 2004 according to the Economist Intelligence Unit.

The high level of IT maturity and easy entry into the market, have attracted a broad spectrum of players, from multinational telecom operators, computer companies, systems integrators and niche companies.

Swedes welcome new technology that is user friendly, stable and is provided at competitive prices. The country has a large number of multinational companies, the highest per capita in the world. These companies rely heavily on state-of-the art technology for their operations.

2. The Marketplace for Business Process Technology

The Swedish software market is sophisticated with skilled domestic software development companies. Sales are around USD 2.8 billion and are expected to see healthy growth in the next year, around 4.%. The Swedish software market consists of global software development companies and small, innovative niche-oriented companies. There are around 800 Swedish software development companies in Sweden, many of which specialize in systems software for communications, business systems (tax and accounting packages with local applications), and applications software for telecommunications. Security software is also a dominant segment among Swedish software developers.

Systems software had the strongest growth in 2004 with a growth of almost 6% while application software grew by around 3%. It is estimated that growth continued at the same level in 2005 and that applications software will gained somewhat on systems software. For 2006, growth is estimated at 6% and 4% respectively.

Demand is expected in the following segments: solutions for supply chain management, business intelligence, document management, applications for increased mobility, e-business, CRM, and information security.

U.S. products are well received and 75-80% of imported packaged software is of U.S. origin. The market is highly competitive and customers are looking for products that will make business processes efficient, robust, and flexible.

3. The Marketplace for Communications Technology

By deregulating the Swedish telecommunications market in the early 1990s, the country took a major step forward in developing a sophisticated and modern telecommunications market. TeliaSonera and especially Ericsson have been the driving forces to put Sweden on the telecommunications map in general and wireless communications in particular. As a result of this, a number of global companies have established research centers in Sweden (Intel, Motorola, IBM to mention a few.)

The largest investments in 2004 were in networks, switches and other equipment for fixed line telecom traffic representing slightly less than 50% of total investments, or USD 764 million. Investments in mobile infrastructure reached USD 507 million, USD 347 for 3G expansion, a decrease compared to 2003. In 2005, it is estimated that both packet and circuit switching experienced negative growth while mobile telephony infrastructure grew. Packet switching and routing equipment together with cellular mobile infrastructure are expected to show the largest growth in 2006.

TeliaSonera is the largest provider of fixed telephony followed by Tele2, Glocalnet, ACN and MCI. The mobile phone penetration is extremely high in Sweden, over 100%. There are three GSM carriers that have their own infrastructure; TeliaSonera, Tele2, and Vodafone. Third generation services are provided by four operators; 3, TeliaSonera, Tele2, and Vodafone. All told, there are over 20 service providers in the mobile telephony market, which is expected to grow by around 5% in 2006.

Internet penetration in Sweden is also very high. In the age group 15 to 75, around 80% have access to the Internet at home and 47% have access to broadband. ADSL is the dominating form of broadband access, followed by CaTV and LAN. Use of W-LAN is expanding in Sweden. The largest operator, Telia Homerun, has more than 15,000 hotspots throughout the country. Other service providers are Defaultcity, Pownet, and The Cloud Nordic.

Around four million households in Sweden have access to at least one television set. Broadcasts are provided via terrestrial, cable or satellite means. The Swedish Parliament decided in 2003 that Sweden will discontinue analog TV broadcasting and shift to digital. The process started in 2005 and will be completed in February 2008. Digital radio has been introduced in Sweden, but broadcasts reach listeners in four metropolitan areas only, representing 35% of Sweden's population.

4. The Marketplace for Digital Equipment & Systems

The Swedish market for digital equipment and systems is slowly picking up again after a few years of generally negative or no growth. Investment in IT solutions follows the trends of the general economy. Consequently, there should now develop increased demand for investment in new equipment especially as the aging IT infrastructure needs replacing.

It is estimated that the Swedish server market increased by around 7% in 2005. High-end servers experienced the largest growth with a 15% increase. It is forecast that the entire market will grow by around 5% during 2006.

Sales of PCs increased by 24% during the third quarter 2005 compared to the same period in 2004. The largest increase was in the consumer desktop segment. The laptop segment is the largest with 45% of the market. It is forecast that the entire PC market will increase by around 5% in 2006. Printer sales are estimated to have increased by almost 8% during 2005. The forecast for 2006 is a 4% increase.

The Swedish market for digital cameras has shown strong growth during the past few years. In 2004, sales increased by 38%. Growth in 2005 was less due to the fact that mobile phones to an increasing extent are equipped with higher quality cameras, thus competing with low-end digital cameras. As much as 70% of all mobile phones sold in 2005 were equipped with a camera.

The Swedish MP3 market has experienced phenomenal growth since the rollout of the technology. During the third quarter of 2005, the market grew by 30%. For the entire year, growth is estimated at 47%. In 2006, we will probably see less growth in this segment when an increasing number of music-enabled mobile phones will be offered.

Another segment in the consumer electronics segment that is showing a positive trend is the market for plasma and LCD TVs. During the third quarter in 2005, the market grew by 107% and the increase for the entire year is expected to be 125%. The largest growth is in the LCD segment. Another consumer electronics segment that has been showing healthy growth in Sweden is the DVD market. It is forecast total growth in this segment during 2005 was 15% while the VCR market decreased by 45%.

5. Future Prospects in this Market

The Swedish IT market is experiencing positive signs and increased demand after several years of downturn. There is a pent-up demand for hardware, software and services.

Customers will, to an increasing degree, look for business process outsourcing, allowing outside companies to handle applications, software and development. It is estimated that this segment may grow as much as 10%. Other major areas of growth will be mobile solutions and services with the expansion of 3G technology, systems integration, IT-security, investment in new systems, and e-solutions.

The convergence between IT and the entertainment industry will continue to create business opportunities. With the expansion of broadband services, more users will be able to take advantage of a wider selection of services online. IP telephony will be capturing market shares from traditional fixed line telephony with new offerings of less expensive services. Demand for triple play will increase at a fast pace.

The public sector represents around 30% of ICT sales in Sweden. The Swedish Administrative Development Agency (Verva) is responsible for carrying out the procurement process. Procurement is planned within the following sectors: software, IT consultancy services, servers, PCs, mobile communications, and communications equipment for voice. Information in English is available on Verva's website <http://www.verva.se>.

6. Important USDOC Resources in this Market

Please visit our website for information on our services

<http://www.buyusa.gov/sweden>

Other useful links:

IT Sweden: <http://www.itsweden.com/>

Invest in Sweden Agency: <http://www.isa.se/>

Ministry of Industry: <http://www.industry.ministry.se/>

Sources: Invest in Sweden Agency

ITSweden

EITO

Trade sources

Switzerland

Capital:	Bern
Population:	7,300.000
Languages:	German, (English), French, Italian, Romansch
Monetary Unit:	Swiss Frank (CHF)
Exchange Rate:	1.29714 CHF
GDP per Capita (in US\$):	\$35,000 (2005 est.)

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Part 1—Market Overview

Switzerland continues to offer an outstanding export market for the Information and Communication Technology Industry. It is an affluent and trendy market with an estimated total volume of USD 19,2 billion this year. The market is currently grew at an estimated 3,0% in 2005 and market observers expect an even stronger growth for 2006. Leading factors for this excellent growth rate include:

1. Strong business demand for hardware (desktop and laptop computers, servers, storage solutions, wireless and wired network equipment, 3G equipment, high end peripherals);

2. Continuous strong interest in latest software products and upgrades (Security, Customer Relationship Management, Finance and controlling, Enterprise Resource Planning, Supply Chain Management, Security, document management, content management, enterprise application integration, application service providing and e-procurement;
3. A solid high-end consumer base (over 50% of the Swiss households subscribe to broadband Internet access, either via cable modem or DSL connections.

Part 2—The Marketplace for Business Process Technology

Business Process Technology is of paramount importance to the Swiss Industry. Be it the banking and finance sector, the chemical and pharmaceutical industry or the large multinational companies and International Organizations headquartered in Switzerland, business software applications are in high demand. Currently, some of the largest market players include: SAP, Elca, Bedag Informatik AG, Oracle, Bison, Wilken, Microsoft, Abacus Research, Sunbay Software, Compuware and Simultan.

Customer Relationship Management (CRM) and document management/storage solutions are two strong market drivers. But more growth is also anticipated in the financial applications, CAD/CAM software, system security software and Government solutions (eVoting has been successfully launched by the State of Geneva, more states are expected to follow suit).

Part 3—The Marketplace for Communications Technology

Switzerland's communication industry offers its customers leading edge and high quality communication applications. With the launch of the 3G mobile phone networks, broadband internet is now available in virtually all cities and suburbs via a cellular phone or cellular PCMCIA cards in laptop computers. Either cable or DSL connections with access speeds of up to 4 MB/sec are available to over 90 % of the Swiss population. The current monthly charges for high speed Internet connections start at USD 8, making it affordable for home business and small and medium enterprises (SMEs) to upgrade from

their existing ISDN connections and invest in latest-technology network infrastructure. This trend will be further accelerated by the deregulation of the last mile in the near future, which encourages increased competition between the communication service providers.

Continuous strong growth is expected in the communication backbone infrastructure, mobile computing, server and desktop systems, network storage solutions and WIFI network equipment.

Part 4—The Marketplace for Digital Equipment & Systems

While the data storage market has not moved significantly since 2001, market insiders now report an expected growth of 5 – 7% in 2006. Most promising in the storage market is the SME market segment, where data needs are virtually exploding. It can also be expected that large enterprises and government agencies will continue to expand their storage solutions. With growing needs of mobile data access, providers of high quality and high security storage outsource and or mobile data access solutions will find an attractive market in Switzerland.

Switzerland's typically strong digital graphics market is further being boosted by a high demand for leading edge digital equipment. With consumers turning to digital picture and video equipment, bundled with the latest flat panel displays (either plasma or TFT) and color laser printing, the retail industry is reporting new stimulus for the otherwise sluggish IT hardware market. Manufacturers of leading edge digital equipment and systems will find a sizeable customer base in Switzerland.

A snapshot into the Swiss photo industry reveals a steady decline of traditional film development. But the steady rise of the digital camera and video market make up for it by far. Sales of digital cameras, photo paper and over-the-Internet development has risen by approx. 20% in 2005. Latest cameras, offering resolutions of up to 15 mega pixels are ensuring a continuous growth, esp. in the professional photo market segment. Digital cameras currently represent an estimated 85% of the Swiss camera sales market.

The world market share of digital cameras vs. traditional cameras is currently around 55%.

Part 5—Future Prospects in this Market

Best prospects in the Swiss Information and Communication market sector include all of the following products and services:

1. Desktop, Laptop, Server, security and storage hardware and related software
2. Enterprise software and tools
3. Mobile communication hardware and software
4. IT consulting and outsourcing
5. IT hardware and software for federal, state and local government
6. Advanced web applications and services

Part 6—Important USDOC Resources in this Market

Please contact me directly for further details on the Swiss IT market. We offer a full range of services tailored exclusively to companies that are interested in exporting U.S. products and services to Switzerland. You will also find additional valuable information on the U.S. Commercial Service Internet platform on www.buyusa.gov and its related sites.

Turkey

Country/Market:	Turkey
Capital:	Ankara
Population:	70 Million
Languages:	Turkish
Monetary Unit:	New Turkish Lira (YTL)
Exchange Rate:	\$ 1 = 1.35 YTL
GDP per Capita (in US\$):	\$ 6,700

Local Market Commercial Specialist

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Part 1—Market Overview

Turkey's Information Technology market (IT) size was \$4.5 billion in 2005. This figure is expected to reach nearly \$ 5.58 billion by the end of 2006 with a market increase of estimated 20-24%. With over 6 million personal computers in Turkey and 5 million internet users (unofficial figures triple of this figure), pc sales are still the main driver for gross sales. Total ICT (including telecom) market is estimated at \$ 13.8 billion.

Following is the market size estimate for the IT Sector (excluding telecommunications):

USD Millions	2004	2005	2006 (estimate)
Total Market Size	4,200	4,500	5,580
Total Local Production	1,000	1,048	1,100
Total Exports	135	180	230
Total Imports	3,200	3,452	4,075
Imports from the U.S.	650	800	1000

Exchange Rate used: \$1 = 1.350 YTL (New Turkish Lira)

Note: The above statistics are unofficial estimates.

The Turkish ICT market is expected to grow significantly as regulations decrease and competition increases with Turkish Telecom's privatization. The privatization awaits a court decision expected ruling in favour of the privatization mid 2006. Industry contacts have a consensus that the next big market opportunity for ICT firms in Turkey is wireless broadband internet and applications, accessories thereof. Hot spots in airports, café's and other public locations are in the rise. Wireless connectivity devices such as PCMCIA cards, bluetooth hardware, edge technology, gprs, internet via satellite are increasing in popularity and thus sales. Wireless connectivity is also boosting notebook pc sales as people seek mobility and connectivity at the same time. It is anticipated that there are roughly 6 million internet subscribers in Turkey at the moment and a total of 15 million internet users.

Part 2—The Marketplace for Business Process Technology

The Turkish information technologies market is dominated by hardware sales. The market has experienced double-digit growth over the past five years except during 2001 when the economic crises affected IT purchases across the board. The following table provides an overview of hardware sales volume over the past five years.

HARDWARE MARKET IN TURKEY

The Turkish information technologies market is dominated by hardware sales. The market has experienced double-digit growth over the past five years except during 2001 when the economic crises affected IT purchases across the board.

Computer Hardware Sales Revenues 2002-2005

Year	Sales Revenue ('000 USD)	Percent Change
2002	1,435,970	44.2
2003	1,865,000	29.1
2004	2,424,000	30.0
2005	3,103,000	28.0

There are an estimated 6 million personal computers and 1 million notebooks in Turkey. Turkey's population of 70 million is relatively young and given the current demographics of computer and internet users, it is evident that the computer market is far from reaching the saturation levels, increased internet speeds and other enhancements have and will continue to boost PC sales further.

SOFTWARE MARKET IN TURKEY

The recent trend is seen especially in defense software contracts being outsourced to Turkish subcontractors. The impressive know-how and experience of these Turkish firms are leading to further joint ventures between US and Turkish firms.

There are plans to organize a "Software Matchmaking Conference" in Washington DC, for November/December 2006. Please register with Ihsan Muderrisoglu, email: Ihsan.Muderrisoglu@mail.doc.gov for further information.

Software Market Revenue 2002-2005

Year	Revenue ('000 USD)	Change (%)
2002	423,215	56.2
2003	517,860	22.4
2004	672,000	30.0
2005	826,560	23.0

Part 3—The Marketplace for Communications Technology

The U.S. IT hardware and software manufacturer will find that due to time commitment, cost, and complexity of the regulatory and commercial environment, it would be critical to select local representation. Although many people in the larger urban commercial centers understand English language may be a serious barrier in rural areas. It is therefore imperative that marketing information and user guides be written to the consumers' own language. To win over the local customer, a Turkish language web site would be extremely useful. Having a local representative or partner could help in translating your advertising so as to catch the eye and interest of the Turkish consumer.

For companies seeking to gauge market receptivity, exhibitions and conferences are excellent product launch vehicles. Reconfiguring the user interface and software would not be necessary in the initial market fact finding stages and that once market interest is determined and confirmed can the U.S. company and its local partner look at packaging the hardware and software to meet the needs of the Turkish consumer.

Standards / Import Regulations - CE mark is an issue. Since Turkey has adapted full acceptance of the regulations due to its European Union Customs Union membership, IT products need to meet the European Union directives on low voltage and electro magnetic compatibility. IT products need a CE mark to be able to imported into Turkey.

Apart from electro-mechanical standards, IT producers must ensure that all electronics be compatible with the radio-frequency levels of the Turkish national standards on frequencies. Products manufactured prior to 1 January 2000 cannot be imported. This is an outstanding regulation attributed to hinder problems related to the Y2K bug. No secondhand IT equipment is allowed into Turkey “unless the equipment is an integral part of a machine used in manufacturing”.

Part 4 — Unique Opportunity To Increase Market Exposure In Turkey

CeBIT Bilisim Eurasia – 5-10 September, 2006

Istanbul, Turkey

To build on the success of last year's event, the U.S. Commercial Service will again organize the USA Pavilion at CeBIT Eurasia Bilişim 2006. In addition to having the advantage of being located at a high-profile venue with other major U.S. firms, the U.S. Commercial Service will support this exhibition by bringing potential foreign buyers from throughout the Middle East and Eurasia region to your stands and arranging one-on-one appointments with them.

- CeBIT Bilisim Eurasia, 5 -10 September 2006. (www.cebitbilisim.com) is a U.S. Department of Commerce certified exhibition.
- Venue: Tüyap Exhibition Center, Istanbul, Turkey
- Turkey's largest IT trade show is an excellent venue to enter the Eastern Mediterranean, Caspian and Middle East markets. For further information on exhibiting at the USA pavilion in Istanbul please contact the U.S. Commercial Service Ankara.
- Turkey with a population of 70 million ranks among the world's 20 largest economies.
- CeBIT Bilisim Eurasia continues to expand as more and more countries seek business connections with the European and Asian markets.

This year promises to once again attract the world of ICT products and services to this very lucrative marketplace. Over 160,000 visitors and 900 exhibitors from 55 countries attended CeBIT Bilisim Eurasia last year. Please contact Ihsan Muderrisoglu, email: Ihsan.Muderrisoglu@mail.doc.gov for details on exhibiting at the USA Pavilion at Cebit Bilisim Eurasia Istanbul, 5-10 September 2006.

Part 5—Future Prospects in this Market

ADSL (Asymmetric Digital Subscriber Line) – The largest driving force for new IT investments for small and medium sized business' and households

The existing copper telephone line infrastructure proved to be reliable and capable of handling speeds up to 50 times that of dial up. The switch is quick and relatively hassle free. ADSL's other strategic aspect is its role as a locomotive for the Turkish Government's E-Government initiative. All Government agencies have nearly completed their migration to ADSL based internet technology and thus invested in IT equipment. Turkish Telecomm has allowed IP telephony (also known widely as Voice Over IP) to its users through a dozen or so companies who have obtained this license. These licenses and firms are however allowed to use VOIP to international destinations only. Local and domestic telephone conversations over VOIP are still not allowed unless specifically approved by Turkish Telecom, whereby firms are allowed to do so only within their company structure regardless of location within Turkey.

ADSL's other strategic aspect will be its role as a locomotive for the Turkish Government's E-Government initiative. E-Government sites now operate interactively with the public and range from filing your taxes to finding out if you have any outstanding parking tickets, getting your passport application and other applications via the internet.

The U.S. IT hardware and software manufacturer will find that due to time commitment, cost, and complexity of the regulatory and commercial environment, it would be critical to select local representation. Although many people in the larger urban commercial centers understand English language may be a barrier in rural areas.

It is therefore imperative that marketing information and user guides be written to the consumers' own language. To win over the local customer, a Turkish language web site would be extremely useful. Having a local representative or partner could help in translating your advertising so as to catch the eye and interest of the Turkish consumer.

Professional software for professional's may be in English and may not require localization. For companies seeking to gauge market receptivity, exhibitions and conferences are excellent product launch vehicles. Reconfiguring the user interface and software would not be necessary in the initial market fact finding stages and that once market interest is determined and confirmed can the U.S. company and its local partner look at packaging the hardware and software to meet the needs of the Turkish consumer.

Best Prospect Products/Services

Wireless equipment / services

Notebook PC's

ADSL modems small home / business routers / wireless modems

Network security appliances

Professional custom tailored or off the shelf software

Portable data storage

Part 6—Important USDOC Contact in this Market

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Please contact Ihsan Muderrisoglu, email: Ihsan.Muderrisoglu@mail.doc.gov for details on exhibiting at the USA Pavilion at Cebit Bilisim Eurasia Istanbul, 5-10 September 2006.

Deadline for applications is July 1, 2006.

UK

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UK Market 2005 Key Facts

Country/Market:	United Kingdom (UK) <i>United Kingdom of Great Britain and Northern Ireland</i> <i>(Great Britain includes the countries of England, Scotland & Wales)</i>
Capital:	UK: London <i>England: London</i> <i>Scotland: Edinburgh</i> <i>Wales: Cardiff</i> <i>Northern Ireland: Belfast</i>
Population:	60 Million (2004 est.)
Languages:	The official language is English. <i>A substantial minority in Wales speaks Welsh, and a</i>

<i>minority in Scotland speaks Gaelic.</i> <i>In addition, there are many large communities in the UK whose first language is not English. Numerous languages are spoken in London, including thirty-three for which there are resident populations of 10,000 or more.</i>	
Monetary Unit:	£ British Pound (Sterling, GBP)
Exchange Rate:	\$0.52 (£1.00 : \$1.91)
GDP per Capita:	\$28,350 (World Bank 2003)

Part 1 - Market Overview

This report is intended to give the reader an overview of the Information and Communications Technologies (ICT) sector. As this is such a large sector, it will focus on the more dominant themes and give information in a generic context. The main themes cover software, the internet, IT services, broadband, wireless and IT hardware. The United Kingdom is on track to become the dominant market for ICT in Europe this year, thanks in part to public sector spending and the outsourcing boom. The sheer size and strength of the UK ICT market - 130,000 UK companies operate in the sector and over one million people are employed in ICT - demonstrates its importance to the UK. At \$54 billion in 2003 the UK software and computer services sector is the largest in Western Europe. In 2002 it represented 8% of global consumption, 3% of UK GDP and employed about 600,000 people (DTI).

UK ICT Industry Growth Figures

UK	2002/03	2003/04	2004/05	2005/06
IT	-1.4%	-.3%	2.4%	4.3%
Telco	2.3%	2.4%	4.1%	5.6%
ICT Total	.3%	1.0%	3.2%	4.9%

(Intellect)

London's ICT corporate base is unrivalled in Europe making it a key center for knowledge-driven activities. The network of telecommunications, telecommunications services and computer equipment companies in London is the largest in Europe. In addition, there is a network of well-developed early stage venture capitalists and incubators that can meet the investment needs of growing ICT businesses. London's diverse and vibrant quality of life along with a common language and cultural familiarity makes it the favorite destination for North American expatriates.

Britain is now home to the internet's biggest data hub. In total more than 55 gigabits per second of data regularly pass through the London Internet Exchange where the UK's net firms swap traffic between each other's networks. This huge volume of traffic puts the UK net hub ahead of similar exchanges in the U.S. and Japan.

The UK has a strong science and technology base, with world-class design, research and development disciplines. Many UK universities and scientific institutes take part in joint research projects with businesses. The UK as whole has 28 million skilled and adaptable workers with high standards of education particularly vocational education and training. Labor market regulations in the UK, including working hours, are among the most flexible in Europe, and staffing costs are highly competitive.

Part 2 - The Marketplace for Business Process Technology

Software and Computer Services (SCS) is the fastest growing segment of the UK ICT industry, with sales of \$54 billion in 2003. The UK excels in this area and produces some of the most cutting-edge and innovative products and solutions in the world. Britain is particularly strong in the areas of e-technologies, parallel computing, artificial intelligence (AI), virtual reality and multimedia software products.

Software and Services account for 67% of UK total IT spending. Growth is expected to average around 8% from 2001-2004. Recent growth has been driven mainly by outsourcing, which experienced 17% growth in 2002 (reports indicate up to 150% growth in 2003/4). Also, the increasing popularity of enterprise-wide web-based solutions has driven the need for integrated software and services.

The driving force in the UK software market is the trend for web-enabled integrated enterprise-wide solutions and e-technologies in the workplace. As well as a mature

domestic online environment, with half of UK residents having access to the internet, over 80% of all UK businesses have websites and a quarter are using their online presence for trading.

The UK is also famous for its leisure software. One driving force behind this is the popularity of computer games in the UK. Britons are voracious game players, accounting for up to one third of global games software sales, a market currently growing at 22% a year. Three of the top-selling games in the world were created in the UK. In industry rankings, 11 of the top 14 European software developers and six of the top 13 global software developers are British companies.

Companies such as Eidos, with its Tomb Raider series of games, has conquered the world, and firms such as Digital Bridges have enjoyed international renown for their games products. Symbian, born out of the electronics pioneer, Psion, is a leading player in the market for mobile phone operating system software. Sage, based in the North of England, is a major force in the world of accountancy software. Games software has long been a strength. Homegrown software companies also shine on the international stage. Autonomy, based in Cambridge, pioneered the use of sophisticated algorithms to search and categorize information. Its software is used around the world by large organizations, including the U.S. Government

Centers of excellence abound. Cambridge, in the East of England, is home to Microsoft's first research and development center outside the U.S. In Bristol, in the South West, Hewlett Packard has a substantial research facility, and IBM has an impressive R&D presence in the South East of England. The Thames Valley, stretching from Swindon in the West to London in the East, is home to hundreds of high-tech businesses, many of which are household names on both sides of the Atlantic (Computer Associates, Oracle, EDS, etc).

Part 3 - The Marketplace for Communications Technology

The first half of 2004 has seen steady growth in telecoms sector revenues driven by growth in broadband internet and mobile sectors. The level of broadband penetration in the UK, measured as subscribers per 100 population, is now comparable to most European countries although is still behind the USA, Japan and most notably Korea.

The UK telecoms sector is set to evolve rapidly over the next few years. While British Telecom's (BT) digital subscriber line (DSL) product has consolidated its position as the main broadband wholesale delivery mechanism, BT is progressing its local loop unbundling (LLU). Ofcom, the UK communications watchdog, recently completed a seven-month consultation process and confirmed a new set of charges that will establish the future of LLU in the UK. The regulator essentially ended BT Group's monopoly over the vitally important "last-mile", which connects households and businesses directly to cable or telephone companies. As yet, only a few companies are actually taking full advantage of the potential, and many companies are simply reselling BT Wholesale offerings. The market is showing signs of an evolving 'triple-play' sector offering IP based internet, voice and video services. Traditionally, it is only the cable Telco's who have had a true triple-play offering, but LLU has allowed pioneers to enter the market. Despite the shift away from traditional voice services the fixed telephony market has been boosted by growth in the number of lines with carrier-pre-selection (CPS), which has stimulated price competition after a period of relative stagnation. The development of mobile services has been a major UK success story. The four GSM operators (O2, Vodafone, T-Mobile & Orange) were joined in March 2003 by the first 3G operator, 3. Vodafone and Orange have recently launched their 3G services (Q4 2004).

There are some 30 million subscribers using "pay-as-you-go" mobiles. A key driver in this growth is the emergence of "virtual" operators such as Virgin. UK mobile companies also have a history of innovation. Vodafone provided the 1st analogue mobile service, the world's first digital service, and was the first to offer data, voicemail and SMS. There have been a number of market announcements from telecoms operators and service providers, which show clear moves towards further convergence, both within telecoms and with other communications sectors.

Since opening up to competition, the UK telecoms market has become one of the most dynamic in the world, with new technologies such as wireless and broadband internet continuing to drive market growth. The Government has encouraged the use of Wi-Fi. Deregulation has allowed public network operators to use certain parts of the spectrum that are exempt from licensing for Wireless LAN (Wi-Fi) type systems. As a result,

“hotspots” have developed in sites throughout the country, such as coffee shops, transport hubs and hotels.

For GSM and GPRS mobile handset platforms, there has been a move to open operating systems that allow third party developers and content providers to deploy services and applications across all networks and handsets. The UK has the world’s leader in such interoperable operating systems, Symbian. The UK is world-class in the space technology and satellite communications marketplace, with the strongest manufacturing and supply base in Europe. The satellite communications industry generates around \$1.3 billion in sales and employs over 6,000 people (UKTP).

According to a recent report released by UK communications regulator Ofcom, nearly 56% of UK households now own some form of digital TV. Ofcom’s Digital Television Update for Q3 2004 shows that UK households that own at least one TV that receives digital broadcasts are increasingly buying additional set top boxes to convert second sets in the same household. More than 1 million UK households now have two or more Freeview boxes for different TV sets in their homes. The Update also found that Sky still commands the lion's share of the market with more than 7 million subscribers, followed by Freeview, a free-to-air digital terrestrial TV service, with 4 million. Freeview is the fastest-growing form of digital TV in the UK, with 660,000 boxes sold in Q3. The UK government wants 100% of the population to switch to digital TV by the time they switch off the traditional analogue signal in 2012.

Part 4 - The Marketplace for Digital Equipment & Systems

The UK is a leading market for ICT hardware, which encompasses computer hardware and peripherals, as well as other communications equipment and infrastructure. Britain continues to produce groundbreaking technology, which makes the UK one of the most innovative and fast moving players in the world. The UK PC market is enjoying a boom at the moment, spurred on by a positive economy, burgeoning consumer expenditure, and a discernable return in business confidence.

The market continued to grow during 2004, with shipment levels exceeding 1.87 million units. This fueled growth of 21.4% and signaled a further acceleration in the long awaited

corporate spending rebound. Combined with another quarter of strong consumer demand, growth in Q2 2004 was at its highest level for almost four years. While small and medium sized business and consumer demand continued to fuel strong notebook growth of 24.3% year on year, the desktop market achieved 19.6% year-on-year.

The consumer PC market experienced another strong quarterly performance, characterized by a continuation of fierce competition between the retail and direct consumer channels. Strong demand continued to be fuelled by Windows XP migration and digital media offerings, with consumers seeking ever-increasing storage for music, video, and image files.

The commercial desktop market grew by 27% year-on-year. Improved business confidence resulted in the green light being given to a number of corporate infrastructure overhauls, with the need to upgrade to Windows XP Pro providing further impetus.

Commercial notebook shipments expanded by 18% YTY — the first time since Q2 2001 when growth has been slower than for desktops. Top-tier vendor SMB programs continued to fuel substantial demand, while the uplift in corporate activity saw an increase in the number of desktops being replaced with notebooks.

Mirroring activity within the economy, the UK PC market faces a healthy expansion this year, before dropping to a more sustainable growth-level of 9% in 2005. The outlook in terms of unit shipments for the next couple of years is positive, therefore, but the issue that will need to be addressed is the threat of declining profit margins in the face of increased commoditization and declining prices.

Part 5 - Future Prospects in this Market

The UK ICT market is expanding and there is growth across all sectors. Outsourcing of ICT functions is increasingly seen as a ‘smart way’ of handling the issues associated with running an IT system – risk is passed to the contractor and the costs are defined over the life of the contract. Businesses appear to be buying new systems and rolling out Windows XP as a corporate platform incorporating .net and other middleware to bridge technologies, or replace legacy components.

The public sector is investing heavily to meet the UK government’s targets, whereby all UK citizens should be able to access local and national government services. Security

across the whole ICT sector is increasingly important, personal and corporate software and hardware devices are in demand, fuelled by the increasing attention on security from all segments of the media.

Broadband penetration is accelerating; the proportion of businesses using xDSL has almost doubled (13% to 24%) and over 60% of these businesses have connections with a bandwidth of 1 Mbps or more. UK businesses now lead in the adoption of wireless LANs and are among the leaders in the uptake of Voice-over-IP and desktop video conferencing.

3G technologies are currently trying to drive the sort of wide spread technology upgrade last seen prior to Y2K. The technology is probably too young at the moment, with mainly early adopters and the technologically curious changing their platform. The UK's longstanding adoption of number portability makes the changeover straightforward. Bluetooth technologies are becoming more pervasive in everyday life and changes in regulations for mobile telephone use in cars has driven the widespread adoption of Bluetooth headsets.

"There are signs that the UK market has become more competitive. Of businesses citing competitors as a strong driver in implementing technology change, 61% (up 8 percentage points from 2003) have implemented an ICT solution in response to ICT deployment by competitors." (UK DTI)

In summary the UK is a good destination for U.S. ICT companies wishing to expand internationally. The common language and close cultural ties help foster good relationships across the Atlantic. The UK ICT consumer, either in business or in a personal capacity is a sophisticated buyer, educated and often buying their third or fourth generation of a particular technology. The UK is not ideally suited to late-coming generic products, but new innovative technologies that can solve a defined need, or produce tangible ROI are likely to succeed in this country.

Part 6 - Important USDOC Resources in this Market

The U.S. Commercial Service in London is headquartered at the American Embassy. We are further represented at the U.S. Consulate in Belfast, Northern Ireland:

U.S. Commercial Service

American Embassy

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U.S. Commercial Service

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F: +44 (0)2890 386 107

U.S. Commercial Service (UK) website www.buyusa.gov/uk/en or www.usexports.co.uk

Ukraine

Capital: Kiev Population: 47 million Languages: Ukrainian Monetary Unit: Hryvna (UAH) Exchange Rate: \$1/UAH 5.05 GDP per Capita: \$1832 (estimated)

Local Market Commercial Specialist

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Part 1- Market Overview

Ukraine is an emerging market economy at the crossroads of Eastern Europe, Russia, Central Asia, and the Middle East and holds great potential as a new market for U.S. trade and investment. Ukraine's resources and economic strengths include very rich agricultural land, a strong scientific establishment, an educated and skilled workforce, and significant coal and moderate oil and gas reserves. Ukraine has achieved significant progress in opening its market to exports and investment, particularly in the last few years. However, prerequisites for sustained economic growth, such as improvements in rule of law and corporate governance, remain incomplete. Until these basic weaknesses are corrected, and an independent judiciary system is established to support and protect them, Ukraine's economic development is likely to lag behind its Eastern European neighbors and be unable to attract the volume of foreign or domestic investment that the country needs to raise living standards.

Despite some progress in deregulation, domestic and foreign investors continue to be discouraged by a burdensome array of tax, customs and certification requirements, as well as by corruption, the lack of effective corporate governance, and political uncertainty. Some progress has been made on taxes when the government approved a flat 13% personal income tax rate beginning this year and a corporate tax rate reduction. But the value-added tax rate reduction is still the subject of political controversy at present and does not provide an answer to special VAT exemptions or methods to decrease the large balance of unpaid VAT reimbursements.

Exports from Ukraine, the reduction of capital flight, growth in oil refining, retail trade, and food processing have been the main factors behind Ukraine's recent economic performance. Increased consumer confidence is also reflected in the banking sector where household and business bank accounts are increasing. Business confidence, in general, is good, as evidenced by strong growth in new business registrations, mostly in the small- to medium-enterprise sector. Cash collections and transparency are improving in the energy sector, and new legislation has been enacted to simplify registration of products and the licensing of business activity. Ukraine has almost completed regulatory and legislative reforms needed for gaining accession to the WTO.

However, the legal structure in Ukraine remains undeveloped. And while the government is attempting to pass new legislation to help improve the independence and professionalism of the judiciary system, courts remain weak and subject to political pressures. Allegations of unfair rulings or poor enforcement of decisions in commercial cases are well known.

U.S. businesses exporting goods to Ukraine will discover that the country's commercial infrastructure, which is still only partially developed, has matured rapidly over the last two to three years. Logistics and distribution networks have improved dramatically. And international financing, leasing, and licensing to help exports are becoming more common. Although foreigners may find Ukraine's import regime daunting, it is not insurmountable and is comparable to other transitional economies in the region.

Despite the many hurdles they face, U.S. companies have remained at the top of the list of exporters and investors in Ukraine and have been active in finding opportunities offered by Ukraine's growing economy.

Part 2- The Marketplace for Business Process Technology

A more legitimate and transparent market for computer software is slowly taking shape in Ukraine. Enforcement of IPR legislation as well as steady growth of the Ukrainian economy in 2000-2004, and the resurrection of local manufacturing industries have generated a substantial increase in demand for computer software for industrial and business needs.

The exact size of the Ukrainian computer software market is difficult to measure, because both major subsectors of the computer software market: imported software and software development feel a severe impact of the shadow economy. Imported software dominates the office software market and the market of software solutions for government, businesses and industry. Operating systems, office applications, archivers, antivirus packages, and accounting programs are the sales leaders. Windows and Microsoft Office programs are currently the most widely used office software in Ukraine. Illegal imports of pirate office software, illegal use of software licenses and domestic pirate industry production have a severe impact on the size of the legitimate software market. However, most U.S. and international suppliers of software reported strong sales growth (24%-53%) in 2004-2005.

Ukraine is slowly emerging as a low cost site for high quality software development. Unofficial estimates indicate that this industry employs 25,000 certified programmers and many more specialists of different backgrounds and qualifications. Industry experts believe that computer software development accounts for 10-30% of IT market revenues. This means \$150-300 million in monetary terms. The total number of software development firms is 1,030. Company staff varies from 10 to 380 employees.

Part 3- The Marketplace for Communications Technology

Telecommunications and IT are important infrastructure sectors in Ukraine. The revival of the Ukrainian economy after 2000, as well as foreign and domestic investments in telecommunications made over the last 10 years, have brought marked changes to the Ukrainian telecom industry, particularly in mobile wireless and Internet. However, despite obvious improvements in telecom infrastructure, the lack of transparency and slow decision making in licensing and frequency allocation, continuing delays with the privatization of Ukrtelecom (the national telecom carrier), and ongoing disputes between telecom authorities and private telecom operators seriously hurt the development of the entire telecom industry which lags far behind the rest of the national economy in its movement toward liberalization, transparency and openness for foreign investment. Although private fixed line telecom providers are slowly overcoming Ukrtelecom's existing monopoly, their market shares are still too small to trigger major changes. Ukrtelecom privatization is scheduled to happen in 2006 and, if it occurs, it will reshape not only the fixed communications market but also the mobile communications industry.

Mobile Telecommunications

The situation is different with mobile operators. As of August 1st, 2005 five Ukrainian operators - UMC, Kyivstar GSM, Astelit, Golden Telecom GSM, and Ukrainian Radiosystems (Wellcom) were servicing almost 21 million customers, which is twice as many as the number of Ukrtelecom's clients. Two leading mobile operators, UMC and Kyivstar, had over 10 million customers each, while other operators lagged far behind.. The market penetration for mobile communications is 45%. Industry experts believe that in preparation for the Ukrtelecom privatization, the regulatory authorities will give a green light to radio spectrum conversion that will create opportunities for 3G technologies deployment in Ukraine. It is also worth mentioning that WiFi and WiMAX are quickly gaining in popularity, although their growth is limited by a narrow customer base.

Internet

Internet services are one of the leading, albeit small (in monetary terms), subsectors of the Ukrainian telecom industry. Reportedly, as of July 2005, there were 6.5 million Internet users. This number, if compared to 5.9 million Internet users registered in December 2004, shows that Ukrainian Internet use grew 10% in the first 7 months of 2005. In 2004 there were 28,800 web sites registered in Ukraine. Unfortunately, the geographic distribution of Internet users is very uneven. Kiev, the capital, accounts for 55.4% of the Internet customer base. The share of six other large cities (Dnypropetryvsk, Odessa, Kharkyv, Lvyv, Donetsk, Zhaporyzhzhya) is 32.16, while the rest of the country accounts for only 12.4% of the total number of Internet users.

Part 4 – The Marketplace for Digital Equipment & Systems

Computers & Peripherals

The exact size and structure of the Ukrainian computer hardware market is difficult to measure, since shadow local production and shadow imports of components remain among the key factors that determine the structure of the market. Industry insiders estimated the capacity of the local PC market in 2004 at 930,000 units. PCs assembled in Ukraine currently account for more than 90% of the total PC market. This ratio is different with notebooks where international brands account for 70% of the market, and servers, where local manufacturers and importers claim an equal share of the market. Computer manufacturers represent less than 10% of approximately 700 companies currently operating in the local computer market. Although there are dozens of small PC assemblers in Ukraine, only a small number (6-10) of companies determine the profile of the local computer manufacturing industry. Late in 2005, Hewlett Packard announced its plans to begin manufacturing PCs in Ukraine. This project, if successful, will definitely reshape the market. The main source of computer components and peripherals for Ukrainian assemblers is Asia.

Electronic components

Several leading international electronic component manufacturers are considering major manufacturing projects in Ukraine. If implemented, these projects would turn Ukraine into one of the leading suppliers of electronic components to the European Union electronic industry.

Part 5 - The marketplace for Security & Safety Products

American-made security and safety equipment is one of the most promising industrial sectors for export to Ukraine. Because domestic manufacturers are unable to meet demand, both in terms of quantity and quality desired, U.S. exporters may find that the local market offers many opportunities, especially in the high-tech end of security products.

While existing legislation restricts the purchase and use of firearms by the average citizen, many citizens rely upon a variety of security devices and alarms for their homes and cars, including car alarms, house alarms, advanced technology locks, and closed-circuit TV.

The rapid growth of private banks and corporations has been accompanied by an increased demand for security software, safety deposit boxes, safes, metal detectors, pagers, smoke detectors, and sophisticated turn-key security and access control systems. Ukrainian companies are often willing to pay top dollar for an effective security package, as seen by the proliferation of Ukrainian security companies. U.S. companies are advised to use trade exhibition opportunities to make valuable contacts and to contact private Ukrainian security firms directly. U.S. firms should also note that the importation of security and safety equipment requires certification and licensing from relevant Ukrainian government agencies, which is often a cumbersome process.

The local market also offers evidence of a growing demand for high-tech antiterrorist equipment, which is not manufactured locally. Customs, railroads, airlines, airports, state

law enforcement agencies and private security companies show a growing interest towards advanced surveillance and access control systems.

Part 6 – Future Prospects in this Market

As soon as Ukrtelecom is privatized (which may happen in late 2006), there will be good business opportunities for U.S. suppliers of equipment for fixed and wireless local loop networks. This process will also offer more opportunities for supply of broadband applications and value-added services to wireline and wireless carriers. Radio spectrum conversion (that may take place along with the Ukrtelecom privatization) will offer opportunities for 3G network deployment in Ukraine.

The local market offers evidence of a growing demand for high-tech antiterrorist equipment, which is not manufactured locally. It may be expected that government agencies such as customs, railroads, airlines, airports, state law enforcement agencies and private security companies will show a growing interest toward advanced surveillance and access control systems.

Part 7 – Important USDOC Resources in this Market

Product Literature Center at EnterEx /ExpoTel IT and Telecom Exhibition, February 20-23, 2006

Product Literature Center at BEZPEKA (Security) Exhibition, October 2006

CS Kiev web site: <http://www.buyusa.gov/ukraine/en/>